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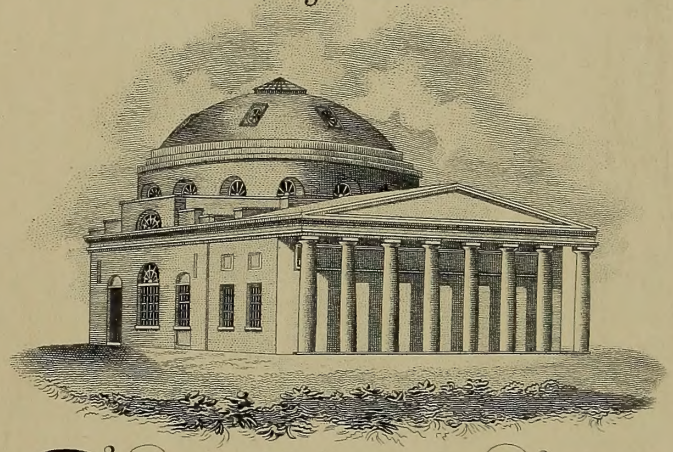

University of Maryland

University of Maryland Theses

Early Doctor of Medicine and Doctor of Physic Dissertations with Corrected Tables of Contents

These manuscripts described as either an Inaugural Dissertation or an Inaugural Essay were presented to the University of Maryland for the Degree of Doctor of Medicine and/or Doctor of Physic during the years 1813-1887. The individual dissertations were bound together during the 1940's. The original tables of contents for the bound volumes contained multiple errors in authors' names, titles, and/or years. To address these errors, an additional "Corrected Table of Contents" has been inserted at the beginning of each volume.

The project team who investigated and corrected the tables of contents were Richard J. Behles, Historical Librarian/Preservation Officer; María Milagros Pinkas, Metadata Management Librarian; Angela Cochrane and Carol Harling-Henry, Resources Division; Sarah Hovde, Abra Schnur and Megan Wolff, Services Division.

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UNIVERSITY OF MARYLAND

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[1] Noteworthy title page

HSHSL 2012 for the UM Digital Archive. Sources consulted for corrections: Original Dissertation; University of Maryland Medical Faculty, Matriculation List, 1821-1851; Cordell, Eugene F. "University of Maryland, 1807-1907" (New York : The Lewis Publishing Company, 1907), Volume 2.

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UNIVERSITY OF MARYLAND

THESES

1851 (a)

Heaton, Y. B.	Clinical Report of Six Cases	25p.
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Wilkins, John	Clinical Report of Cases	23p.
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A

2

Clinical Report

of

Six Cases

Respectfully Submitted

to the

Provost, Regents,

and

Faculty of Physic

of the

University of Maryland

for the Degree of

Doctor of Medicine

by

Vincent Bosley Avalon

of

Maryland

Feb. 13th 1857.

WMB
1899

Case Sixth.

A negro [illegible] Colored man [illegible] [illegible] attended [illegible] [illegible], in a healthy [illegible] was sent to his Master [illegible] living in this city on the 31st of March 1860. When he came he was suffering much from a severe hemorăge from his mouth and tongue. Upon making inquiry of him as to the cause he said he did not know unless it arose from some potatoes which he had eaten, which had laid exposed to the sun, and had turned green, or a piece of pork that was tainted. He had not been exposed to wet or cold previous to this time. His countenance was now anxious, and his features distorted; his pulse was weak, small, and easily compressed, and he was bleeding profusely.

From the symptoms present it was diagnosed by Drs. Montgomery and A. Donovan to be a case of Purpura

Haemorrhagica, for which disease he was treated [illegible] with the [illegible] results. there was [illegible] for him

Quinia Sulph. ℈i
Acid sulfuric ʒij
Aqua distil ℥iv. a table-

spoonfull every 3 hours.

April 1st Very little improvement, still bleeding, gave him

Sp[illegible]. Terebinth. ʒij
Sacch. alb. ʒij
Gum Accas. ʒi
Aqua pure ℥xiv a

teaspoonful every 4 hours. Also

Chlor. Soda [illegible] ℥ß
Sp[illegible]. Terebinth. ʒij
Muc. Accacia ℥iij
Sp[illegible] Lavendulae ʒi to be

used as a gargle. He was ordered from the first to have strong beef tea and nutritious diet.

April 2nd Saw him again he was still bleeding from the mouth and lungs but slightly, and was very much reduced by the great loss of blood. The same perscriptions were continued.

April 3rd Saw him again, still bleeding, and his pulse exceedingly weak and small. First gargle stopped, gave him

Acid Pyrolig. imp ℥j
Aqua Fonti. ℥v as a

gargle. Also Acid Gallicum ℈ij
Aqua Ebulient ℥ij
Brandy opt. ℥ij a

tablespoonfull every 3 hours.

Today he began to pass bloody urine and his feces were tainted with blood. His blood up to this time would not coagulate.

April 4th Visited him again he still bled a little from his mouth, but his Countenance was better.

Same treatment continued.

April 5th Visited him again. Found him somewhat improved. No bleeding from his mouth. Urine and feces still tinged with blood. The same treatment was continued.

April 7th Saw him again. Still improving. His pulse to day is more firm, and his blood will now coagulate, Bled a little during the day. The same perscriptions were continued, and in addition to his diet a little porter was allowed.

April 10th Visited him again. Found him much improved. Former gargle stopped, and was given in its place

Arg. Nit Crypt. ʒi
Aqua ℥ij

April 14th Visited him again and found him greatly improved. His pulse was now pretty good, and his countenance lively.

the bleeding from any part of his body, &
the sloughs which had formed in his
mouth were being thrown off. The last
gargle was stopped, and he was given

Sub. Boras. Sodae ʒij
Cortex. Prep.
Sacch. aa ʒi
Pulv Sanguinaria ℈i
Aqua pura ℥iij as a

gargle.

April 17th Saw him again. He was
rapidly improving. His mouth under
the application of the last gargle was nearly well. He now looked like another man
and was happy in the belief that he
would soon be well again. He was
given

Myristica Moschata ʒiij
Quiniae Sulph ʒss M ft

into X pills one every 3 hours.

April 18th saw him again. Almost well.
He said his bowels had not been moved for the last 24 hours. For this he was given

Ext Rhei fluid ʒj
Mag. Carb. gravid ʒij
Aqua pure ℥iij a

tablespoonfull every 3 or 4 hours.
From this time the cure was completed by Tr. Mur Ferri, and Quinia Sulp. Wine, porter and strong diet, the man under this treatment rapidly recovered, and is now as healthy as ever he was.

This case was seen by many of the most able Physicians of this city, and they all expressed it to be the most extraordinary case they ever saw.

Thus ended happily one of the gravest cases it has ever been my privilege to see.

Case Second

Butler aged 16 Came to the office on the 17th of March 1850 A bricklayer by trade, He said that about a week previous to this he had had connexion with a woman, and that she had given him the Venerial disease. Upon examining him I found a small Shancre upon the glans penis, and the glands in his groin swollen and indurated. I at once diagnosed it to be a case of primary syphilis.

I perscribed for him

Hydrarg prote. Iod gr xij
Pulv Opii. gr viij
Ext Sarsap. ʒj to be

made into XXIV pills, one to be taken 3 times a day. The Shancre I cauterised, and ordered him not to eat any salt meat. And also to keep the parts perfectly clean.

March 22nd Came to the office again. His groin had not suppurated yet,

but was still indurated. I now ordered him a caustic solution for it, composed of Hydrarg. Bi. Chlor. gr XX aqua gj.
The Shancre was drying up fast.
March 30th Came to the office again. He had not used the wash as directed. The matter had not pocketed in the cellular tissue, and I thought it necessary to lay the parts freely open. I ordered this to be dressed with Ung. Hydrarg. and the spurious granulations to be touched with the previous solution. The same perscription was continued
April 10th Saw him again, He was now much better. Same treatment continued.
April 19th Saw him again, He was now quite well to all appearances. The Shancre was healed, and the bubo gone, and he left with a promise, which all youths should make, never to be bitten again.

Case Third.

Morrow a white man living in Jasper St. Saw him on the 27th of Nov. 1850. Upon inquiry I ascertained that he was an Irishman by birth, and a weaver by trade, aged 45. Unfortunately for this man he was of intemperate habits.

Previous to this time he had been drinking to excess for two or three weeks, and in the height of intoxication he had suffered a painful injury either by a fall or by some imprudence in Venery. He was unable to tell, which was the cause, but certainly, though he attributed it to the latter. When I saw him, in company with my Preceptor, he was lying upon his back apparently much exhausted. Upon examining him more closely, we found him labouring under excessive singultus, with pulse small, frequent and easily compressed.

Upon inspecting his genital organs we found that the lower half of his Scrotum was in a state of gangrene, and also a large portion of his penis.

He told us that he had been sick for about 14 days, and that he had been seen by another Physician, who had bled him severely at first, and that upon coming a second time he had tried to bleed him again, and not succeeding as he had on the previous occasion he had made several cuts into the tendons of the Muscles and wounded them severely, from which there was now a considerable discharge. There was also some phlebitis.

The man was in an anemic state, his skin was pale looking almost bloodless. The same was apparent upon everting his eyelids, and his finger nails were curved inwards, he exhibited all the symptoms of excessive prostration.

It was obvious from the symptoms present that the past treatment must be at once stopped, and that an entirely different one employed. The object now was to support the powers of life, and check ~~check~~ his distressing singultus. Accordingly he was prescribed — Acid Sulphuricum gtts v every two hours, for his singultus, and at the same time Tinct Sulp grij every 4 hours, and good diet, with strong beef-tea. An anodyne of Opium (grij) at bed-time

Nov 28th Saw him again, his singultus had greatly subsided, and his pulse was better. He was ordered a poultice of yeast and Carrots to his scrotum penis and arms.

He was ordered to keep perfectly quiet. and the parts were put in the Suspensary bandage,

Oct 2nd Saw him again. the gangrenous parts had now nearly all sloughed away

and instead of the former poultice he was given one composed of Charcoal, Peruvian bark and yeast. His countenance was better looking less anxious pulse still small and weak. the discharge from his arms presented a more healthy appearance. Same treatment continued. His bowels not being open, he was given Massa Hydrarg grx

Pulv Rhei grx

Oct 8th Visited him again, he was now much better, his pulse was good, and his singultus had entirely left him. His arms were nearly well, nothing being left but some slight stiffness of the tendons.

The gangrenous parts had all sloughed away, and healthy granulations had begun to form. the poultice was laid aside and it was dressed with Ung Turneri.

The man now began to think he was going to be of use again, although his testicles hung down like two pears from a stem.

Oct 15th Visited him again, he now presented a much better appearance than at any previous time. And nothing now remained but to complete the cure by giving to him some better tonic. The bitter tonic was selected, and he was ordered an infusion of Columbo 3 times a day. He was also allowed to take some exercise in the open air. Skin was beginning to form over his testicles. The Quinia was stopped, also the Serate to his scrotum.

Oct 28th I saw him again at the office. The Skin had now formed over his scrotum and penis, and he was once more the hale and rosy-cheeked Irishman that he formerly was. This is a case that I think could not have been saved, by any other than the treatment employed.

Case Fourth.

McComas, colored, man living in Jasper St. aged 31. Sent to the office on the 9th of Oct 1850. Complained of great stiffness and some pain in the right knee, this he said had existed for some considerable time, and that he had been seen by some other Physician, who had called it deep-seated rheumatism, and had treated him for that disease, but with no good result.

Upon examination it was found that there was considerable effusion of water into the cellular tissue around the joint, and also some inflamation. There was tenderness upon pressure in some places, and in others great induration. He was a strong and healthy man, and says he was never sick before. He was ordered a good purgative dose of Hydrarg. Prote. Chlor. and Rhei āā gr XV. also to have 8 or 10 leeches applied around the joint.

when the tenderness ceased, he was placed in the horizontal posture. the leech bites were covered with a warm fomentation in order to keep them bleeding as long as possible. He was ordered at bed-time if there was much pain 3r opii gtts XXX.

Oct 12th Visited him again, the pain and tenderness had considerably diminished, but the stiffness still continued, and the induration in some places. He was ordered warm poultices, and the leg was bandaged from the foot up to the upper thirds of the thigh.

Still kept upon this back.

Oct 17th Visited him again found the swelling but little diminished. The poultices were still continued, with the addition of a little of Goulard's Ext.

Oct 28th Visited him again found that the fever had subsided, also the tenderness and swelling to a considerable degree. He was now blistered, and the part dressed with

Ung. Sabini gave him a gentle apperient of Massa Hydrarg and Rhei.

Nov 4th visited him again he was much better, the fever, pain, and tenderness had almost subsided, and there only remained a little oedema and stiffness. He was now ordered to drop the past treatment, and to paint the joint over with Tr Iodini and keep the knee from cold.

Nov 18th came to the office, he could now walk verry well, the effusion having left the joint, it was still a little stiff, but he was able to attend to his business, and now I have the pleasure of meeting him frequently in the street, attending to his business as well as ever he did.

Case Fifth.

George Johnson, an American by birth, living in Mulberry St. A laborer, and 40 years of age, came to the office on the 18th of September 1880. His history was, that for the past two years he had suffered an almost total loss of his vision, and that during that time he had been treated by several physicians and for several different diseases of his eyes. Upon looking into his eyes it was at once apparent to me what was the matter. It was a confirmed case of Amaurosis. He said it had come on gradually, and they now presented the vacant stare so peculiar to this disease. The eyelids moved sluggishly, and the pupils were very much dilated. He says that he was never a drinking man, but that he used tobacco very freely both in Chewing and Smoking. Upon further inquiring into his history, he told me that for the last two-

years he had suffered always after eating a sense of uneasiness and pain about the epigastric region, often accompanied with frequent eructations, that he was unable to eat anything without experiencing this sensation.

He told me also that he had never had any long and weakening disease, and that to the best of his knowledge he had never taken any of the narcotic or acrid pisons (with the exception of the tobacco). He says that he is liable to severe headache every day after eating. His tongue was covered with a considerable buff. After hearing this history I concluded that it was a case of sympathetic Amaurosis arising from disordered stomach.

I therefore determined to employ the treatment laid down in Mr Druett's book. It was commenced by giving to him -

Antim Tart grj

Pulv Ipecac Ji dissolved

in 6 tablespoonsful of warm water, a spoonfull -

to be given every 15 Minutes until it vomited him pretty severely. This was done in order to arouse his stomach. He was at the same time given Hydrarg proto Chlor gr x

Ext Colycinth Comp gr xv.

He was ordered to abstain from the use of tobacco entirely and to employ a low diet, avoiding all salt meat

Sept 20th came to the office again, said he had taken the medicine as directed, and that his stomach felt better. It was not thought proper to take blood generally but he was ordered to have a cup applied to each temple, and to be dressed with an ointment composed of

Strychnia gr j

Acid. Aceticum gtts iv

Ung Simplex ℥ß.) Mistake.

He was given Massa Hydrarg gr v every other night in order to keep his bowels free

I also perscribed for him Richter's resolvent pills composed of –

Ammoniaci

Assafoetidae

Saponis

Valerianae

Arnicae āā ʒj

Antim. Tart. gr xviij Mft

int. xxiij pills one to be taken 3 times day.

The Antim Tart and Ipecac was to be repeated 2 or 3 times each week.

Sept 28th Came to the office again, said he had used the Medicine. But told me that neither the pills, nor the powders nauseated him to any extent. The former perscriptions were consequently increased in strength. I now gave him Antim Tart grip

Ipecac gr xxx dissolved

in the same amount of water as the former. I also added gr iij of the Antim Tart to the pills. These perscriptions were to be given at the same intervals that the former ones were. He said he did not feel so much

uneasiness in his stomach after eating as he had previously, and his vision was improving slowly.

Oct 5th Came to the office again. His general appearance was better, his eyes did not look so vacant, and his pupils were less dilated. He said that he could now distinguish objects in the street quite well, in favorable weather. The same treatment was continued.

Oct 10th Saw him again, he informed me that on every other day his vision was worse, on account of this paroxysmal change I ordered him a small quantity of Sulphuric, to be taken on the night previous to the day when his vision was bad. The other prescriptions were continued.

Oct 18th Saw him again. Found him looking much better, his tongue was pretty clean, and his eyes presented a much healthier appearance than at any former time.

He had now lost all that uneasy sensation at his Epigastrium, and he now felt confident that in a short time he would wholly recover his sight, but this was something that I did not expect, and told him that I could only improve it, and not perfectly restore it. I considered the disease too chronic and his age too great to wholly restore it.

However I determined to persever in my efforts, I now stopped the Antim Tart and Ipecac, also the pills, and give him in their stead Ammoniaci ʒß

Assafoetidae ʒß

Pulv Rhei gr xviij

Nux Vomicae gr vj. To be made into xij pills one to be taken 3 times a day. I also ordered him a blister the size of half-dollar to each temple, and this to be dressed with an ung. composed of Strychnia gr j Acid. Acetum gtts vj Ung Simplex ʒß.

Nov 7th Saw him again. he had used the perscription as directed and also the Hestia and had found great benefits from them. His vision was now growing better every day, and he felt quite like another man. I advised him to continue on with the remedies which had been given, confidently believing that if persevered in they would ultimately improve his sight so that he could pass the rest of his life very comfortably, being able to resume his former occupation and earn a livelihood.

I now have the pleasure of meeting him frequently on the street attending to his business.

Case Sixth.

Dec. 24th. Was called at 10 o'clock in the morning to see a child in Eulaw street. 5 months old. It was a weak and delicate child, and in an anemic state. I found it in convulsions which had lasted for about two hours. Its eyes were turned up, wide open, and filled with water. Its Extremities were cold, and pulse scarcely perceptible at the wrist. I had its extremities bathed in warm water, then rubbed dry, and wrapped up in flannel. Cloths wrung out in cold water applied to the head. Ordered two leeches to be applied to each Mastoid process.

These bled freely, and in a short time the violence of the Spasms began to mitigate, and become less frequent.

Same day 3 o'clock, saw it again. The Spasms had ceased. Child was conscious but very languid.

Prescribed Hydrarg Prot Chlor gr j
Pulv Scamony gr ¼
Every 2 hours. In the course of 4 hours it
was freely purged, and it rested tolerably
well during the night.

DEC 25th Slight returns of the spasms
which lasted about ¾ of an hour. Ordered
the former prescription, and in addition
Magnesia tea. The bowels were freely acted
on in 3 hours. Ordered it to be nursed a
small quantity at a time.

DEC 26th Visited it again, and was much
pleased to find it perfectly well. The cause
of this attack, is supposed arose from the
bis pre nursing of another woman, while
the child's mother was at market.

AN

INAUGURAL ESSAY

ON

CHEMISTRY,

Submitted to the examination

of the

PROFESSORS

AND

FACULTY OF PHYSIC,

OF THE

UNIVERSITY OF MARYLAND,

for the degree of

Doctor of Medicine,

BY

EDWARD LAFAYETTE SHEEHY,

of

Maryland.

1851.

Gentlemen.

The author will consider himself as repaid for months of severe application, in which, relinquishing the pleasures of society, and abridging the hours allotted to repose, I have devoted all my leisure to the accomplishment of this object, I hope the imperfections may be looked over, and I solicit, from the faculty of science correction of any material errors that may be noticed, and I beg indulgence for the inadvertent use, or that I have been too particular to bring from comparative oblivion, names of ancient chemists, or an occasional want of perspicuity, through care to avoid ambiguity the very fault itself may sometimes have been committed, Is it not

more noble for an immortal soul than to employ itself in knowing the second causes by which the Deity operates in the material world, than to waste the precious hours of existence in dreaming over sickly reveries of fancy, than the admirers of sublimity and beauty find more in the study of nature, or can the lovers of the marvellous find no wonders in her operations? There is in chemistry food to satisfy the most extravagant fancy, and in the sublime truths of the science are mysteries far surpassing the boldest conceptions of human genius. What more noble use can man make of his intelligence, than to apply it to the knowledge of the objects which surround him? Chemistry may well be considered

as pre-eminent among the useful sciences, divested of the errors which, fifty years since, rendered the science so intricate and unsatisfactory, it is now open to the researches of all, Nature, if I may so speak, has no longer her secrets, Chemistry has discovered the phenomena which operate in her atoms, calculated their effects, traced their bounds, and insulated their elements, Such are the rapid and wonderful results of chemical experiments, that one half-hour's attention may suffice to throw light upon some of the most obscure mysteries of nature, The language of chemistry, with improvements in the science, has undergone great revolutions, nothing can be more absurd than the names given to different chemical pre=

parations, by ancient authors, sometimes the name of the inventor, sometimes the appearance or properties of the product, were taken as distinguishing appellations; the pupil was put in the right track of terms which rendered no assistance to any systematic arrangement of the substances. As soon as a chemist was based upon established truths, it seemed necessary to reform the language, after various attempts, our nomenclature seems at present definitely fixed. The history of this science, or invention as well as the progress of the human mind in relation to it, is always interesting, and furnishes hints for future improvement. General views of this science enables the student to comprehend the beauty

and regularity of the whole as a system, it is indeed necessary in commencing, to proceed by the slow and sure method of deducing facts, and from these facts, deducing general principles, the facts which establish principles, and the principles which constitute the science, Chemistry is an important study when viewed either in relation to the grand object with which it is conversant, or in its ennobling effect upon the minds of those who pursue its bold investigations, Chemistry takes a wider range than any other department of physical science, in the mineral kingdom it penetrates the hardest materials, and inquires into the

native of their elementary con-
stituents. In the vegetable sub-
stances, chemistry with scrutin-
izing glance detects their medic-
inal and nutritious qualities,
this almost magic art can
disentangle and set them free.
In the animal kingdom, chemistry
performs a high and solemn
office, teaching round man him-
self, that his own material
frame, beautiful in its aspect
and noble in its bearing, is in
truth but a compound of a few
simple elements, which as they
have previously existed in other
combinations, will again be dis-
sipated to become parts of the rose
that bends sweetly upon the decaying
body, and the noisome weed & bud
plant that springs from the soil

which [illegible]

The term chemistry is by some supposed to be derived either from Greek word χημια, or the Arabian chamia, which signifies to burn, and that the science at first signified the examining of substances by fire. By others the word chemistry is supposed to have been used by the Egyptians in a sense equivalent to the present meaning of the term natural philosophy. This science among the Egyptians, was for a long time confined to the wise men, or magi, who carefully concealed their knowledge from the people. Plutarch supposes that the study of nature, for this reason, was called chemistry, which word, in his opinion, signified the secret

science. Whatever might have been the degree of knowledge of nature possessed by the Egyptians, they were probably unacquainted with the general principles on which the science of chemistry is founded. The Israelites gained from the Egyptians some knowledge of the art of weaving cotton, and of dyeing red, blue, purple, and scarlet; the Phœnicians are supposed to have understood the manufacture of glass, perfumes, and imitations of precious stones. This knowledge was originally communicated to the Carthaginians and Greeks, and by them to the Romans. The two latter people seem however to have only acquired but a very limited knowledge of any chemical operations,

in any branch of analytical sci-
ence, Plato [illegible]
[illegible] when he makes an Egyptian
say to Solon, "You Greeks will be
always children, for you have
neither the antiquity of knowledge,
nor the knowledge of antiquity;"
who among them would have
dared to take water from a foun-
tain or a river and decompose it by
fire: they would have exclaimed
against the impious wretch, and
the people in their indignation
would have torn him to pieces.
The Egyptians although, so far
imagination was mingled with
their religious beliefs, and free
from many of the notions which
kept other nations in intellectual
bondage, they dared to look into
the secrets of nature. Pliny the

older places the Egyptians ...
first in knowledge of the sciences,
Pythagoras of Samos, who flourish-
ed 540 B.C, travelled into Chaldea,
Persia, and Egypt, in the last coun-
try he gained a knowledge of
chemistry that appeared to Him
almost super human, and yet
this mysterious and venerable land
has transmitted to us scarce a ves-
tige of our discoveries, The library
of Alexandria, which contained
their treasures of knowledge, was
successively destroyed by the victorious
Romans and Mahometans, The
science, driven from Egypt, Greece,
and Rome, in the 4th century took
refuge, in Arabia, and Chemistry
appeared under the name of Al-
chemy, The alchemists imagined
that gold existed in all metals,

and it was their great object to ascertain the manner in which it might be separated from its combinations and obtained pure, they expected to find some substance which would enable them to perform this great operation, this imaginary substance, which some pretended to have discovered, was called the Philosopher's stone, Those who studied alchemy pretended to great secrecy, affirming that some heavy calamity would fall upon any one who should reveal the principles of the science, keeping themselves separate from the world, they invented mysterious characters by which the initiated could hold correspondence without danger of discovery, Among the alchemists.

notwithstanding the folly of their pursuit; and the baseness of their deceptions, we find the names of a few distinguished for talents and learning. Albert the Great, a German who lived in the 12th century, wrote a work upon alchemy, in which he described the chemical processes then in use. His treatise on metals was written with clearness, and showed a mind familiar with many of the phenomena of nature. His countrymen, astonished at the extent of his knowledge, accused him of magic, and threw him into prison. His pupil, Thomas Aquinius, wrote upon alchemy, and for the first time the word amalgam was introduced into chemistry. In

his writings astrology and alchemy were united, In England, contemporary with Albert the Great, was Roger Bacon, the most enlightened and judicious of all the alchemists, In his treatise De Mirabili potestate Artis et Naturæ, (the wonderful power of art and nature,) he protested against the foolish belief in magic, charms, and necromancy he asserted that superstition tyrannized over the human mind through ignorance of natural phenomena, He was acquainted with the camera obscura, telescope, and the use of gunpowder, Notwithstanding he carefully concealed his labours, he was accused of magic and imprisoned, Raymond

fully treated of the preparation of acids and phosphorus, About the middle of 12th century, Arnold de Villa Nova, a physician consulted by kings and popes, directed alcohol and the oil of turpentine to be used in medicinal preparations, John and Isaac Holland wrote several treatises on chemistry, with plates representing the apparatus which they used, They made experiments upon human blood, which have aided the most recent discoveries, They invented the art of enamelling and colouring glass and precious stones, Basil Valentine, a German monk, taught that all substances were composed of salt, sulphur, and

mercury, he was the first who applied chemistry to medicine, The most important of his works was called Currus Triumphalis Antimonii, (triumphal chariot of antimony) in this he gave such an account of his experiments with this metal as excited an interest among all the physicians of Europe. An opinion had long prevailed among the alchemists that a medicine might be discovered which should be a universal cure or Panacea for all diseases, some of them held that this could be found in the philosopher's stone, which not only converted metals into gold, but among other extraordinary virtues, possessed the power of rendering man immortal upon earth. Of all

the alchemists, none appears to have pretended to so many discoveries as Paracelsus, a native of Switzerland, born in 1493. He confidently boasted that he was in possession of an elixir which would render him immortal, but he died in the prime of life, leaving his followers overwhelmed with shame and dismay. The last of the alchemists was Van Helmont, who boasted of being in possession of the universal remedy to which he gave the name of alkahest. The alchemistical system crumbling into ruins, chemistry, like the fabled Phenix, arose from its ashes. Becher, a professor of medicine in Germany, taught that the earth was not a simple element, but a combination of ele-

merits, he attempted to establish
chemistry on its true basis, that
of analysis, experiments were of
great use to succeeding chemists.
Stahl, the pupil of Becher, remodelled and simplified the
theory of his predecessors, attempted to explain the process of combustion, and to reduce the doctrine of chemistry under a certain number of heads. His theory of combustion supposed that a certain substance which he called phlogiston formed a part of all combustible bodies, and that its separation constituted fire. On account of the splendor of his investigations, he was called the sublime Stahl. He is the first chemist who appeared to have any clear ideas of chemical affin-

it; he even suggested the theory of double elective attraction. At this period many learned men were engaged in chemical inquiries, and the science was enriched by the discoveries of Boyle, Becher, Glauber, Neumann, Libavius, Rolfinck, Lemery, and others. Boerhaave, an accomplished philosopher and celebrated physician, published a system of chemistry in 1732, which contained a more ample collection of chemical experiments, and more clear and precise directions for repeating them, than any previously offered to the world. He gave an account of vegetable analysis more simple and scientific than any which had before appeared, notwithstanding all these improvements,

chemistry was yet in a very imperfect state, some of the most certain of the chemists still remained, and loose and unsatisfactory reasonings, founded on vague analogies, were employed. It was not for a common mind to attempt to remove the shackles of prejudice which had been binding upon the human intellect. At this time appeared Bergman, a man gifted with a quick and discriminating genius, a moral courage that would look above the words dread laugh, and a devoted enthusiasm for the sciences of chemistry. With true analytical method he scrutinized nature, with a view to ascertain her laws of aggregation, he arranged the well known

tables of elective attraction, and published many important experiments upon volcanic products, the changes of Air, conceptions, the necessity of his discoveries, and the methodical arrangement which he introduced into the science of chemistry, entitle Bergman to rank among its greatest benefactors.

A native of the same country, and contemporary with the great Linnaeus, it was his high destiny to labour with almost equal success in the cause of natural science, while Linnaeus was investigating the external forms of matter, with a view to the systematic arrangement of the animal, vegetable, and mineral kingdoms, Bergman was occu-

lyzing and arranging the elements, of which they are composed, with the frankness and generosity which marks a noble mind, he sent to Linnaeus an account of his experiments and observations, the latter, equally generous, forwarded Bergmann's communications to the academy of Stackholm with this inscription, Vidi et Obstupui (I have seen and am amazed,) Scheele, the pupil and friend of Bergmann, enriched chemistry with new and important facts, he died in 1786, two years after the death of his predecessor, his name is commemorated in name of a compound of copper and arsenic, (arsenite of copper,) called Scheele's green, By a late distinguished chemist Thom-

son, he has been called the Newton of chemistry, soon after the death of Bergmann and Scheele, a series of splendid discoveries marked the advancement of chemical science in Great-Britain, Dr. Black discovered the existence of latent caloric, and that limestone is a compound of lime and an aërial fluid, which he called fixed air, now called carbonic acid gas. This discovery gave rise to pneumatic chemistry, or that branch of the science which relates to gases, Cavendish soon after this discovered hydrogen gas. In 1770 Dr. Priestly commenced a series of pneumatic discoveries. He observed that by heating certain metals a kind of air was obtained, much purer than the atmosphere, and

in which combustible substances burnt with great brilliancy, it is scarcely necessary to say that this was oxygen gas. While the science of chemistry was receiving these important acquisitions in our part of Europe, Lavoisier in France had already commenced his brilliant career, and opened to his countrymen that pathway to scientific distinction, which so many have since pursued with almost unrivalled success. Lavoisier found that the recent discoveries with respect to gases could not be reconciled with the phlogistic theory of combustion, and, after years of patient and laborious investigation, he published the general theory which considered oxygen as the supporter of combustion,

This theory at first met with general opposition, but gradually gained supporters, until Cavendish, Berthollet, Black, Morveau, Monneret, and Kirwan, (the latter of whom had strongly opposed it,) were found among its disciples. In 1787, Lavoisier, Fourcroy, Berthollet, and Guyton de Morveau, were appointed by the French academy to decide upon a nomenclature of chemistry; with great care and research they formed that which is now the almost universal language of the science. Great-Britain may boast of many distinguished modern chemists, of Clare, the powerful advocate of the chloride theory, and the inventor of the safety lamp; Murray, Brande, and Thomson, with

many others, whose labours have enlightened the present age, and whose works will render their names familiar to succeeding generations, as the illustrious Berzelius, Vauquelin, Berthollet, Gay-Lussac, Thenard, Dumas, Aubouy, Pelletier, and others, have carried their researches and analyses to a degree of accuracy and clearness hitherto unrivalled. The year 1829 is memorable for the loss sustained by science, in the death of two of her most distinguished votaries, but long will the halo of glory encircle the venerated names of Vauquelin and Davy. In our own country, Franklin, fearlessly encountering the lightning from Heaven, proved its

identity with electricity, and taught mankind to guard against this awful agent of distruction, Hare, Silliman, Eaton, with other, veterans in the science, and less experienced chemists, have interrogated nature with a brighten prospect of discovery than that which encouraged the effords of their predecessors, for as the field of discovery and improvement is infinite, in proportion as facilities for them are multiplied, so are the motives for exertion. As proper would it have been, at the period when earth, air, fire, and water were considered as the four elements of nature,

for an investigating mind to have rested in this belief as for such a mind at this day to suppose that we have arrived at the maximum of human knowledge, or have already learned as much of the properties of matter as its Almighty Creator wills that he should know. From the nature of chemical experiments, which in most cases require either firmness of nerve, unshrinking courage, of physical strength, and with all these qualities combined, without we are gifted with the intellectual powers to trace the relation of cause and effects and comprehend the wonderful properties of matter which science reveals,

If we are gifted with this science, we may then raise the curtain which conceals the operations of nature, and entering her laboratory, behold the grand experiments which are there exhibited, nor should it be considered a small privilege that we are permitted to share in the sublime discoveries of science, and to feast on the banquet of knowledge prepared by others.

Edward S. Wheeley

An

Inaugural dissertation

on

Dysentery,

submitted to the examination

of the

Provost Regents

and

Faculty of Physic

of the

University of Maryland

for the

degree of Doctor of medicine

By Richd Sappington

of Maryland.

1851

According to the precepts of this and all other good institutions a thesis is required of each candidate. Happily for us you do not demand a given number of lines or pages say thirty or sixty. It may be that you think as Ben Johnson "He who says much must say many foolish things." If so, and the rule worked both ways my composition would be good. But it is not since there have been thousand of treatises written on the same disease by men of experience and consequently they were enabled to give original dissertations.

Now I consider a few words addressed to each of our professors, so that they may deliberate seriously upon our exertions to obtain a knowledge of medicine, but more especially upon our answer to their many questions during the session to be the best test of fitness for graduation. For to be cast from the pinacle of our expectation by one hours examination would be a check upon our minds from which it would be difficult to recover.

Dysentery is an inflammation of the mucous membrane of the colon and rectum, occupying a greater or less extent according to the severity of the case. It is most frequently seen in newly settled countries, in miasmatic or lime stone districts, is more prevalent in autumn, but often occurs during the other months. Sex and age both act as predisposing causes of dysentery, males are more subject to it than females, probably on account of their being more exposed to the causes of the disease and more irregular in their habits. Adults are also more liable to dysentery than children; any depression of the vital powers, whether the result of habit or previous disease, also strongly predisposes to this affection and protracts its duration.

Dysentery is divided into two forms, simple and malignant. Simple Dysentery

or the form without specific fever, is as its name would indicate a mild disease, usually lasting six or ten days. It comes on either with or without premonitory symptoms; If they occur, the patient will have a slight uneasiness in the abdomen, and perhaps a chilly feeling.

The disease itself is usually ushered in with frequent small mucous or bloody stools, straining, shooting pains in the abdomen and burning pain in the rectum it is more severe when at stool.

The pain in the abdomen at first is not increased by pressure. As the disease advances some febrile symptoms set in. Pain in the back makes its appearance, the skin is hot, dry, and husky, the urine scanty and highly colored.

The desire to go to stool becomes more frequent, and more urgent, but the evacuations

are small and give little or no relief.
They consist of a mucous mixed with blood,
reddish serum, scybala and false membrane;
then is sometimes a discharge of pure
blood which causes great pain and
requires the dysenteric odor in a few
days. When pure blood has been passed,
the pain will be slightly relieved.
The exciting causes of dysentery are
various, any article of food exciting
the alimentary canal may cause it (such
as fresh pork spoiled water, or exposure to
vicisitudes of weather as crossing the
water in a boat at night after having
been exposed or heated during the day,
suppressed perspiration from any cause,
indulgence in acrid or unripe fruits,
taking patent pills or other drastic
cathartics, putrid animal or vegetable
effluvia are causes of the disease.

Treatment.

Should be commenced with a full cathartic, a mercurial one if the portal circulation be congested and the selection of the form should depend on the constitution of the patient. Calomel is preferable on account of its greater activity. In some habits however it irritates the stomach then Blue mass must be substituted for it.

The mercurial should not be followered by castor oil as it is apt to disagree with the stomach, and it also has a direct tendency to the large intestines.

Prof Chew, Dr Wood, and many others have used castor oil in dysentery with good success. However I prefer the rochelle salts in combination with tartarized antimony if the stomach will bear it, if the stomach is irritable the salts with one or two grains of Ipecac either of these combinations possess the double advantage of at once unloading the bowels and determining to the skin.

It also relieves the spasmodic contraction of the intestines and this is the chief difficulty to be overcome. If calomel in combination with Ipecacuanha and opium (in small doses) is continued after the above treatment to relieve the portal congestion and to determine to the skin, the room must be kept warm and the patient must not be much muffled up in bed, as by getting up he will check the perspiration. If there should be pain along the colon we should apply a few leeches and an anodyne fomentation to the abdomen, such as Hops or chamomile with a few grains of morphia. The diet should be very light, Barley water, Rice or chicken water (be careful with the chicken water) Gum water, Senna leaves may be beneficial. Such preperations should constitute the chief articles of diet.

Malignant Dysentery, is a more serious disease; yes, it is one of the most dangerous to which the human frame is liable carrying off whole armies and causing far more dread than the

enemy. It is sometimes ushered in by the mild form, and sometimes preceded by fever. It is more liable to be complicated with some other disease, as Typhoid, Typhous, Intermittent, or Remittent fevers, and they add fuel to the flame.

When not complicated, there is a special fever superadded to the other symptoms. At first the patient may have diarrhea, and that is the most frequent mode in which dysentery commences in this country.

This condition is followed by frequent mucous or bloody stools attended with great tenesmus. The discharges are very small, the patient may go to stool a hundred times in the course of twenty four hours, without passing more than a table spoonful each time.

The evacuations are more frequent at night than they are by day.

The pain and tenesmus in the abdomen is intense, the patient being unable to bear the weight of the bed clothes.

He has at the same time pain in the back, great anxiety and prostration, with sharpened and haggard features. The tenesmus is very great. The pulse after a few days is usually frequent soft and compressible, at the commencement it is quick and full generally hard but often full and soft.

The Causes, are the same as in the simple form, with prostrated vital powers.

Prognosis. When the disease is about to terminate favourably, there is no pain, the discharges are more natural, and not so frequent; the fever abates; the skin becomes moist; the urine more natural; the appetite before absent, now returns, and the expression of the patient's face indicates relief from so harassing an enemy.

The continues to grow better from day to day his appetite is much increased his stools less and less frequent, and his health is completely reestablished with the exception of an irritable condition of the colon and rectum which the least imprudence in diet will kindle into an accute inflammation.

When the disease is about to terminate unfavorably all pain suddenly ceases. Hiccough comes on; coldness of the extremities, and of the whole body, follows, and cold perspiration, blueness about the finger nails, shriveled hands, and sunken eyes usher in the fatal termination.

Anatomical Characters. (from Dr. Wood) The mucous membrane of the rectum and lower portion of the colon always evinces signs of inflammation, in cases of death from dysentery. It is much reddened and thickened, and not unfrequently ulcerated, Ulcers, in fact exist in this disease much more frequently than in any

either acute inflammation of the alimentary canal, as in the follicular enteritis of typhoid fever and small-pox.

They are either small and roundish, or large and irregular from the confluence of the smaller, have usually an abrupt edge and are often covered with a concrete exudation having the appearance of a slough. In some cases, almost the whole of the membrane is covered with a coating of coagulated lymph upon the removal of which it appears red and swollen, but without loss of continuity.

Occasionally real gangrenous sloughs are found; and cases are mentioned in which very large portions of the mucous membrane have been removed, probably by a combination of mortification and ulceration. In many cases, the redness, thickening, and ulceration extends beyond the mucous membrane, and sometimes involve the whole of the parietes of the bowel, unless, it may be, the peritoneal coat.

Penetration of the latter coat is exceedingly rare in dysentery. In protracted cases, the mesenteric glands are enlarged and softened, though seldom or never in a state of suppuration. In some instances, evidences of inflammation have been found extending throughout the colon, into the small intestines, and, it is said even to the stomach.

In the adynamic or malignant variety, gangrene is much more frequently found than in ordinary dysentery, and the mucous membrane, when not mortified, exhibits a dark purple or livid appearance.

Treatment of Malignant Dysentery

In treating this form more active remedies must be employed. There are several morbid condition to be overcome viz" first to correct the secretions of the skin, therby releiving the liver and kidney.

This is to accomplished by bloodletting and calomel.

If the fever is not severe blood letting is not indicated but three or four doses of Rochelle salts and tartarized antim. should be given. They will cause free serous discharges and determin to the skin and will also change the disease into a diarrhea which can easily be cured by anodynes and astringents in combination with calomel or blue mass according to the condition of the patient.

Whilst the patient is taking the calomel opium & hippo several times a day, an occasional dose of rochelle salts should be administered to keep up a feculent discharge. This mode of treatment I think the most rational as it produces serous discharges thereby lessening arterial excitement and determining to the skin which relieves the intestinal inflammation and the portal congestion. Diaphoretics, Emetics Specac and cerated glass of antimony

as alteratives and many other medicines have been more or less credited in treating dysentery. Injections are very useful adjuvants anodynes and astringents are to be employed.

Some use acetate of lead, other Laudanum and flaxseed or starch &c.

In dysentery associated with intermittent fever I should treat both at the same time; as in treating Pneumonia and Intermittent, we bleed up with one hand and use stimulants with the other.

Quinine is the chief remedy.

Richd Sappington

14th 2mo 61

An
Inaugural Dissertation
On
Etiology
Respectfully submitted to the
Consideration of the Provost,
Regents, And Faculty
Of
The University of Maryland
For
The Degree of Doctor of Medicine
By
John S. King.

February 23rd 1851.

Etiology.

When we come to consider the multifarious causes of disease, or the morbific action and effect of the numberless agents in its production, there is not much reason for amazement, at the extent of human destruction, or to deny the fragile foundation upon which the human race does rest; or to evince astonishment, at the frequency and facility with which it is impaired, or destroyed; but extensively exhibits the chances of vital maintenance, and causes us to possess the objectionable knowledge of the frequency of death.

From the supposed numberless and alleged variety of causes, and their multitudinous means of origin, we are almost compelled

to believe that the destroying means of existence encompasses us about as the ethereal mist that swims around the world. Whether we in-hale the refreshing breeze of man's purest air, or the floral fragrance wafted by nature's earliest breath, we inspire impure particles antago-nistic to health; or the poisonous emanations being in a more concentrated form prove the imme-diate means of annihilation.

The circumfused air which furn-ishes constituents alike to vegetables and man, wafts to his bosom the pestiferous miasmata that a gradibus crushes him to earth.

Appearantly, the things designed and bestowed upon us by Nature's Creator, for the preservation, and

restoration, of the carneous frame, alike bring with them ills, and every ready for his discomfort, and at last consume him, either by protracted action, or immediate extinction.

The great machinery consisting of its numerous organs, performing their determined functions, and coopera-ting in beauteous harmony, and sublime effect, intended for man's protection, and existance, when trivi-ally, or partially impaired, disarrange, or destroy the beauteous work, and all is lost.

Thus, by the multiplicity of means of vital extinction, the plain, of life resultant action, is rendered but a precarious and narrow Isthmus, where dangers and destroying means arise on every side, prone to befall him

3

unless the most rigid and circumspect sagacity be practiced, and the constant and unceasing reaction of the his ~~Medicatrix~~ Conservatrix Naturae, and when this is forced to yield to the victorious power of disease's hand,

He falls into the tomb, and moulders into dust as all creation soon or later must.

In all Etiological treatises, imperfection inevitably insinuates itself, we cannot assume positively a knowledge of the true and certain causes of disease, because in the majority of cases, these morbific agencies ones hypothetically exist, but this dubious hesitancy is not to be encountered in assigning to some diseases their proper cause, In contagious or self-propagating diseases their origin has never been conceived, by the most vigilant observation, and

diligent secretion, but we are aware,
that they possess the power of reproducing
themselves, by their certain, specific, and
unalterable action upon the system;
and that by no other means could
they be excited, or propagated.
This a satisfactorily deduced fact,
that the cause of contagious diseases
is not a common one, and yet to no
cause can their origin primarily be
ascribed, but of their father's propaga-
tion the most simple illustration
is satisfactory. Thus in the series of
contagious diseases, in every case we
know that the virus or secretion
peculiar to it, will certainly, and
similarly, produce the same effect
upon a mothers individual, and
thus far, our knowledge pursues
the mysterious results, which are

particles of matter peculiar to one disease produces another, identical in character, and possessing the virtues so to reproduce, as inoculation a disease per se.

On the majority of diseases, we ascribe their origin to common causes, and these causes acting upon the system at times when, the susceptibility is variable, will, accordingly have a modification produced in their effects, and quickly, and violently, be manifested, if the susceptability be great, or if not, slightly or not recognizable. As an illustration of these different effects, can be produced the variable results of the impression of one of the most common causes, Cold.

Three persons exposed to its influence at the same time, each will be dissimilarly affected, one may have

to supervene upon its influence, acute Pleuritis Bronchitis, Enteritis, the second catarrh or increased secretion from the Schneiderian membrane, and the third not affected in any sensible way. These different results, as far as we are able to comprehend, are owing to the different degrees of sus-ceptability of each of these organs or tissues to its impression.

In an Etiological division into predis-posing and exciting, the divisions and renaration of the causes must be conducted similar to that of all writers upon Etiology, and necessari-ly almost verbatim, but as far as possible, to speak originaly I will endeavor. First, in the most general arrange-ment of causes, the predisposing present themselves first for consideration,

and to these will I in the first place
a[illegible], after defining their effect and
character. Predisposing causes are
those agents which, by long and protra-
cted action, bring about or cause to
result a reduction or impairment of
the vital resistance, and prepare or
allow with more facility the system
to be influenced by disease, their
effect is very influential in the
augmentation of the susceptibility
to morbid impressions.
The most general and frequent
agent of this class is atmospheric
temperature, and its vicissitudes.
A high temperature excites the
cutaneous circulation, favoring the
origin of Erysipelatous or Squamous
eruptions, likewise encourages
inflammatory conditions generally,

resulting sometimes in inflammation of various organs, as the brain, intestinal inflammations, operates upon the biliary secretion, and cutaneous exhalation, producing either a jaundiced condition, or a flaky pale appearance of the muscular system.

It causes impairment or loss of appetite, imperfect powers of assimilation; and by the impairment or loss of which function, so important in maintaining and indirectly reproducing the animal tissue, results in many functional disturbances or a general cachexy of the whole system.

It causes from its sedative effect oppressed or difficult respiration, and appears, either to increase the susceptibility to miasmatic or contagious diseases, or to

concentrate or make more virulent the infectious miasmata or contagious principal of contagious diseases.

It is unhesitatingly admitted that high temperature excites the generation and escape of morbific miasmatic effluvia, and by its power of heightening the contagious principals of disease, and its debilitating effect upon the human organism, renders it a two-fold agent in the propagation of disease.

Low temperature or Cold, and by far the most prolific means of predisposing to disease or exciting it, exerts its influence upon the whole economy; but particularly to the respiratory organs, perhaps on account of their receiving the air in its coldest state, and the first to receive its first impression.

It causes disease to take on acute and high inflammatory grade, and if it be continued, to alter the type and assume a chronic form, The natural division of temperature into seasons, this influence is exhibited in a more extensive illustration, thus the diseases of winter and spring present an acute, and inflammatory character, whilst those of Autumn and Summer, a low and chronic form, of sluggish progress, and frequently leaves the patient, as the result of their influence, some organic impairment, climates likewise are subject to the same character, as respects the nature of disease dependant on difference of temperature

Thus, a person going from one

climate to a nother, one a cold, the other a hot, if from the hot one, he would be more likely to become the victim of the diseases of the cold, and experience a greater degree of danger than a native, or those who have become acclimated. He would be in the highest degree susceptable of the impression of cold, and its influence manifested, in inflammatory affections of the severest grade. On the other hand, going from a cold, to a hot climate, the enervating effect of the high temperature is, in a degree tenfold, more sensibly experienced, they soon become plethoric, and quickly exhibit cases of hepatic derangement, and cerebral determinations.

The effect of change of climate

can in some measure, be repelled by strict and rigorous observation of dietetic regulations, and a minute correspondence with the character of diet made use of by the natives or those acclimated.

The Habits of life, and particularly occupation, influence the proclivity or predisposition to disease.

Persons who exercise much out of doors and subject themselves to much or long continued exposure to atmospheric vicissitudes, are more liable to inflammatory diseases, than those who remain within. They, on the contrary, suffer more with Plethora, Cerebral determinations, Cutaneous diseases, and derangement of digestive organs, and sometimes disturbance of

Urinary apparatus,
The Occupation, or Practice of particular Modes of living also, exert their influence over the Economy, prepairing or predesposing it to disease.
Singers are more liable to Laryngitis than other People, the working classes to particular diseases peculiar to their occupation, persons engaged in lead mines become affected with that Metal and suffer lead colic, Colica Pictonum
Chimney sweepers to a cancerous affection of the Scrotum, and Equestrians, more than any other class of persons, to hernia.
The food and drink of man afford also abundant causes of disease, it two copious and long continued stimulating dict, will

bring about Plethora, and cause great increase of corporeal bulk, and general turgescence of vascular system, or prove injurious more directly, by overstimulating the digestive organs, weakening their tonicity, and ultimately destroying them.

The intemperate use of alcoholic liquors, ~~will~~ after protracted indulgence, will bring on a weak and worn down condition of the system, by destroying the condition of vigorousness ... to health, in continued undue excitement of the stomach, and render the system more easily to be affected by disease, and particularly to contagious diseases.

The mode of dress, likewise in an extensive degree, acts as a predisposing cause, either dressing too thinly or

wearing clothes principally of woolen texture, will predispose persons to disease. By dressing too thin, the person is more liable to be affected by atmospheric changes, producing (especially in children) Croup, Bronchitis, Rheumatism, and diseases of the chest. When too thick, and warm, promote the cutaneous transpiration, rendering the surface more susceptible to the impressions of cold, and a general delicacy, and susceptibility to morbific influences.

The mode of applying the dress likewise increases the liability to some diseases, by interfearing with the proper functions of organs, as by compressing the stomach, and abdominal viscera, preventing sufficient nutrition, constipation

and its ill effects are produced by it, and greatly interferes with the position of the Uterus, and influencing the development of the intra-uterine contents, and acts as a restraint, mechanically, upon the general corporeal development.

Too long or frequently indulgence in Natures restorative, Sleep, offers an item in the great catalogue of morbific causes.

When too long indulged in, it confuses the mind, renders atonic the muscular system, causes constipation, and results in Cerebral congestions, and apoplectic attacks.

Predispositions are transmissible Hereditarily; the children of scrofulous, insane, Syphilitic,

Epileptic, Gouty and Apoplectic parents stand more chances of having these diseases, when the exciting cause presents itself, than those born of parents exempt from such diseases previous to their birth, and this predisposition is said to be increased, when the mother has been the victim of such diseases.

The different temperaments have an influence in the susceptibility to disease, persons of a sanguine temperament are predisposed to hemorrhagic discharges, and inflammatory diseases.

The bilious to hepatic, the Lymphatic to mucous, Catarrhal Dropsical, tuberculous, and Scrofulous diseases, and the diseases of this temperament assume a chronic and slow character.

The nervous to all various affections, as Neuralgia, Insanity, and convulsive tendencies.

Lastly, for predisposing causes, the effects of previous disease, the weakening and depressing effects renders the system liable susceptible to the same disease, as relapse, or to any other diseases which the weakened condition of the system should encounter.

The Exciting Causes of Disease.

Many of the Predisposing causes of disease when acting with sufficient energy, become judiciously arranged among the exciting causes.

Cold, when acting in a certain degree of intensity, as when the temperature is at the freezing point or below it, is a direct exciting means of various diseases, by its first effects may be produced a benumbing or paralytic effect, by conducting away the caloric in a greater amount than can be furnished, it repels the peripheral circulation to the internal organs, engorging their structure, and causing functional derangement, or suspension. When its effect is less intense or applied for a shorter time, reaction is

established, pain, redness, heat, all the characteristics of inflammation succeed, and fever of the highest grade accompany these symptoms.

It may act upon the intestinal canal causing diarrhea, the sudden repulsion of the blood from the external surface, to internal organs, causing congestion, and inflammation or disarrangement of functional offices. When the reaction is high, and long continued, the last of its effects are gangrene, or mortification.

The Emotions of the mind, whether joyous, grievous, or angry, produce disturbance of function, and resulting in disease, sometimes in marked and sudden attacks.

Strong emotions frequently suspend functional action, and, sometimes life.

It is a fact cognizable to every one, that emotions of any kind, whether sudden, or protracted, pervert or destroy the digestive functions, the hepatic secretions likewise become deranged, protracted torpidity of the bowels, resulting in disease of part of their structure, and congestion of the brain.

Sudden terrific shocks have, and will produce miscarriage, or in an unimpregnated female, suspend the catamenial flow, sometimes causes sudden diarrhea, and frequent voidance of urine.

Anger has been noticed to bring on attacks of jaundice, in a short time, Insanity has been known to supervene upon sudden emotions of grief, terror, or rage.

Many Mechanical and Chemical causes act as excitants of disease.

The mineral acids, and various mechanical ~~Agents~~ substances, when taken into the stomach, or applied to the surface, act as direct irritants, resulting in inflammation producing Gastritis, and Enteritis, resulting sometimes in death.

Many of the liquids, when of high temperature act upon the same principal, producing inflammation and death of the parts in which they come in contact. The various mineral vegetable and animal poisons, are causes of disease and death.

The mineral acids, and preparations, whether applied externally, or internally, produce disease, either

by their action directly upon the organ that they come in contact, or by being absorbed into the circulation, producing general deleterious effects,

Vegetable and Septic poisons when taken internally, either in food, or by inhalation affect the system and are causes of disease.

The venom of poisonous reptiles likewise, are sources of great morbid excitement or general perturbation of the system frequently terminating in death.

The preceding enumeration of exciting causes of disease, are as far as a knowledge of them can be obtained are cognizable as such, and having noticed them all as far as my knowledge

extends, will now proceed to Specific causes. The Specific causes of disease are those which excite, or produce, certain distinct diseases and when applied produce their peculiar (morbid) phenomena respectively. These causes are transmissible in two such very dissimilar ways first, by infection, and secondly by Contagion, (the terms by many are considered as synonymous, Contagion being only a modification of Infection, in Contagion the exciting principal or poison being applied in a more direct and energetic manner.

As having observed before in the course of this dissertation

that the origin of contagious diseases is sometimes unaccountable and open (?) to attribute their spontaneous development and our ignorance as to their cause, the only evidence we have of their being their character or self propagating power obtained only by observation and experiment, and hence often are we thrown into obscurity and uncertainty in regard to their true origin or sources.

Infectious agents arise principally of decayed or putrescent organic substances, from putrefactive animal exhalations or vegetable paludal regions, common sewers dissecting rooms, and slaughter houses affording at all times

and the means of pestiferous and Contagious particles, particularly if heat be added.

As examples of diseases which owe their origin to such circumstances, and exhibit contagious properties, are Typhus Fever, Dysentery, and Purulent Ophthalmia.

+ Contagious diseases are those whose mode of origin we have no idea of, but when once developed in an individual, prepare him to communicate the disease in the identical likeness of that, which he has, to another individual.

Thus particular diseases arise from each different Contagion. Small Pox, Syphilis, Scarlet Fever, Rabies, Pellagra,

each produce their specific disease

Endemic or Epidemic diseases appear to have their origin in local situations, first being endemic and by greater increase and wider range spread abroad and become Epidemic,

They are reckoned to be conveyed both by infection and Contagion by infection when the atmosphere is the means of conveyance, and Contagious when received by one individual from another,

Thus are doubt and obscurity like a dim mist, hanging about the brows of the zealous seeker out of the Arcana of Nature and they doomed at last to retreat from their undertaking and

abandon the search, deeply convinced of their finite minds and inability to comprehend that which, in all plausibility was not intended for men to know.

John L. King

Feb. 23rd, 1857

An

Inaugural Dissertation

On

General Diagnosis,

Submitted

to the examination

of the

Provost, Regents and Faculty

of the

University of Maryland,

for the Degree

of

Doctor of Medicine,

By

Charles H. Pye.

of

Charles County

Md.

General Diagnosis.

From a retrospective glance over the history of our Science, we are forced to acknowledge that there is perhaps no subject more eminently calculated to elevate us in the Standard of our Profession than presenting a more extensive and varied field to the diligent and observing mind to exercise its powers of judgment & discrimination better, than the art of learning to estimate correctly the import of Symptoms, to trace their various relations with each other, and to determine from them the seat, nature, and extent of diseases. This indeed constitutes the first part of the office of a Physician ——

object of a [illegible] of his actual visits to the sick, and is the grand principle which should ever direct & guide him in the practice of his noble profession. It is truly styled by the eminent Sichel "the keystone in medical science" & the number of those who are remarkable for accuracy in Diagnosis is always very small — for eminent proficiency in this art can be obtained only by untiring industry and observation aided by a minute and comprehensive acquaintance with Physiology and Pathology — It is by a thorough knowledge of the history & symptoms of disease that we may hope to remove from the Practice of Medicine the reproach of vacillation & uncertainty which =

Which have so long hidden [illegible]
[illegible] [illegible] the dark
past of the history of observation &
research, [illegible] of that mass of great [illegible]
dispensing their vague & superstitious
foundations upon which the absurd doctrines
of the Homoeopathists & other vile
Sects were constructed, and the Science
of medicine is now far more certain
in all its operations, than it was in
past times when the deluded —
followers of Physic embraced with
avidity the false & absurd doctrines
of Brown's & Hahnemann and
other numerous Sects of their
day; whose [illegible] enthusiasm [illegible]
outthrown their powers of reasoning.
And easily can we account for
this greater certainty of success
in our age of wonderful —
progression & discovery. -

When we view the numerous & beautiful discoveries of Pathological Science, revealed to us by the labors of our modern worthies — it must be acknowledged that it is to the cultivation of general Anatomy together with the changes of views in Physiology and the immense advancement of morbid Structure that we are principally indebted for the recent progress & indeed almost all that is known in medical Science — It is to the investigation of morbid Anatomy that we are principally indebted to establish correct species of disease — yet it is not alone from morbid Lesions ~~alone~~ that the ultimate character & tendency of diseases can always be successfully determined for the advancement

of Physic as a [illegible] and is
intimately connected with our
knowledge of the history, functions
and effects of remedies, — with the
"Diagnosis of the disease in the living
subject. — We are much nearer correct
and rational views on this important
subject of our science than were
our forefathers — And as the structure
and requirements of medicine have
become more extended the art
of discriminating & identifying
diseases, which so greatly contributes
to distinguish the experienced and
truly well instructed physician from
the mere "hap hazard" Recipe-Giver,
will be attended comparatively
with little difficulty, and difference
of opinion will be seldom observed.
A vast number of local diseases,
formerly wrapt in obscurity and —

=ted treated scientifically is not detected with the most unerring certainty through the true [illegible] principles.—

Having dwelt at some length upon the practical & paramount importance of a thorough knowledge of Diagnosis that most important most useful and most difficult of all the divisions of Medical Science, without which no man be his learning or his Science what they may can ever practice Physic with certainty & success and having assigned the Cause of the rapid progress of our Science in this art. It now becomes me to speak of the "modus Operandi" & the instruments to be employed by the Physician in his — examinations. &c. — —

The [illegible] patients are examined is of great importance & has a direct & essential bearing on Diagnosis. — A Careless unconnected or immethodical mode of investigating the symptoms of disease & the various circumstances which may have contributed to determine their character seldom leads to a clear and precise Diagnosis — Indeed, the manner in which a Physician examines his patients affords no inconsiderable criterion for judging of his practical qualifications — method regularity & deliberation in this respect are almost always associated with skill in this art, and consequently in the treatment of disease. — A hurried fretful and impatient manner of examining seldom fails to leave

=to secure the good will & confidence of the patient for his medical attendant whilst on the other hand a mild earnest & persuasive deportment, not only gains the patient's confidence & esteem, by producing many impressions but contributes very materially to a full development and correct understanding of the nature of the disease. We should always endeavour to propose our questions in terms perfectly — intelligible to the patient — and the employment of technical phrases avoided, as they are more apt to excite the contempt & distrust of the sick one than to elicit correct & satisfactory — responses — It is of considerable consequence also to pursue a determined & regular order in —

In the questions proposed, as
insignificant things are apt to be
[illegible]
already been answered needlessly
repeated. Although the inquiries
should be sufficiently numerous
& varied to obtain a full view of
the symptoms of the sick one, and of
the circumstances which may have
contributed to the development
and modification of the disease,
yet trivial & irrelevant questions should
be avoided — By a careful and
delicate attention to these partic-
ulars one cannot fail to gain
the good will & confidence of his
patients; and at the same time
promote his own interests by establishing
a good name, which will redound
both to his own credit & the reputation
of the profession which he professes.

I now proceed to the consideration of the particular diagnostic signs presented by the Countenance — attitude voice nervous system — alimentary canal &c.

The first objects which strike the attention of the Physician on his entrance into the public wards of a hospital or private Chamber are the countenance, attitude motions & voice of the sick one. It is natural therefore to commence the examination with these symptoms. — In many instances these external conditions of the patient afford very important information as to the nature and seat of maladies; and in no case, perhaps, can they be entirely neglected without losing very valuable suggestion in relation to the diagnosis. —

the Countenance should be
diligently & closely examined &
its deviations from the healthy
aspect or expression noticed — it is
a source of information (I regret
to say) too much neglected at the
present day — notwithstanding we
have been taught a wise lesson by our
wise fathers of medicine who in
their great attention to the study of symptoms
paid particular regard to the
appearance of the Countenance. — It is
indeed a very peculiar & highly
characteristic feature in many
diseases, & affords an important and
essential source of information to the
Physician, of experience & observation
and assists him in discerning
the nature of diseases, when the
superficial observer sees only the
general look of indisposition. —

The kind, the stage, the changes, the mitigation, and the progress of morbid affections are accompanied and denoted by corresponding ~~changes~~ states of the Countenance. I will now note a few of the peculiarities of Countenance in reference to disease, to show the importance of its study. — In all acute Inflammations, especially of serous membranes, the Countenance wears a very different aspect, which it is important to observe — particularly in a diagnostic point of view — In chronic inflammations also the Countenance is peculiar — But of all the diagnostics of the different fevers, & of all the indications of their progress, stage, and changes, none is more distinctive & characteristic than the appearance of the Countenance. From this =

source the (Diagnosis, & Prognosis) of fevers equally flow. It is important in eruptive fevers also. In affections of the head, of the thorax & in abdominal diseases it is an essential sign. In colic & other affections accompanied by abdominal pain. In Icterus & Chlorosis, & that class of morbid affections which originating in derangements of the digestion, are accompanied by peculiarities of countenance characteristic of such maladies. It affords a valuable source of information in distinguishing chronic dyspepsia from insidious organic diseases. It is in fact the surest index to the detection of those diseases which are characterized by their insidious & dangerous tendency. For me to detail at length, the morbid appearances of the countenance are =

=would be more than a general view of the subject (which I have imposed on myself) would demand, and at the same time useless, as the remarks already made are quite sufficient to point out the paramount importance. —

I pass on in the next place to notice those diagnostic circumstances which relate to the attitude, motions & voice of the patient. The morbid variations of attitude are more distinctly marked by contrasting them with the more usual & natural positions of the body. That posture which affords most repose to the system in general and most relief in the performance of its functions may be styled the healthy attitude — this like many other morbid signs which take =

To be learnt must be closely studied & observed as it will scarcely admit of description. — The supine position or "Decubitus dorsalis," when attended with twitching of the tendons, or tremor of the extremities, always indicate great muscular debility. When in the progress of continued fever we find the patient assuming this posture with the inferior extremities extended — we may presume from this symptom that the disease is assuming a sinking or "Typhus" character. — It requires much less muscular exertion to preserve the supine position than any other that can be assumed, and in a very debilitated condition of the system there is not sufficient muscular power to maintain the lateral position — If the patient be placed on one side he soon =

he soon turns on his back and is utterly unable of himself to assume any other position — The effect of particular positions are also of importance to be taken as distinctive of affections of the head as in the state of Apoplexy Syncope - It is also of importance in the treatment of some diseases to attend to the position — The recumbent posture is as injurious in the case of Apoplexy, as it is beneficial in that of Syncope. In diseases of of the chest, the attitude is often highly characteristic. In [illegible], & Hydrothorax the patient usually lies with the head and shoulders considerably elevated by additional pillows — It need scarcely be observed how important an attention to the attitude becomes in the treatment of diseases of the heart — In inflammation of the abdomen with acute pain it

is generally attended with a certain position, which distinguishes affections of this kind very pointedly from spasmodic pain of the stomach & bowels. In abdominal inflammation the patient lies on the back with the knees drawn up so as to relax the abdominal muscles and obviate as much as possible pressure on the inflamed viscus. In spasmodic or colic pains on the contrary the patient is wrestless & often changes his posture preferring to lie on his stomach. In Pleuritis the patient usually reposes on the affected side, which is thus kept free from motion. In the paroxysm of Asthma the erect position is usually necessary. There are many other diseases that I could enumerate, in which an attention to the motions & attitude is highly important — but those that I have pointed out will serve to show=

Kathood in Consequence of a Dyspeptic Type. The voice is next deserving of notice - it rarely becomes otherwise under the influence of disease; although it may occur sometimes in Delirium. In most all affections and especially those of the voice, & respiratory organs it becomes more feeble - It may be entirely lost constituting Aphonia, as in the last stage of Croup - In Phthisis & diseases of the Larynx and trachea it becomes frequently extremely hoarse - In certain grave fevers it is often tremulous - In Cholera and Dysentery it is more so it becomes feeble & husky. - The articulation is affected by Paralysis & Spasmodic disease and like the voice in cases of great debility. So much for the voice which is essential to be observed especially in all thoracic diseases.

Having taken a cursory view of the Countenance attitude "motions and voice of the patient - I next proceed to take a more general view of the various regions of the body and of the morbid Condition of the general surface, which is all important in in diseases of a chronic & obscure character. A close examination of the body may furnish very important signs, not only in external, but also in internal affections. The degree of fulness or emaciation general and local - the Colour & condition of the Skin, and the general & physical habit & Conformation, should be observed. In some general maladies, such as scurvy - syphilis - scrofula & the Itchy mites, glandular induration eruptions and blotches a careful examination will afford essential =

=diagnostic evidence. The Cicatrices
too merit special attention; particularly
when seated along the neck and in
the groin - the former are almost
always the result of scrofulous tumors
whilst the latter affords good grounds
for suspecting the existence of a
Syphilitic taint. In external
diseases simple inspection of the
general surface is often sufficient to
establish the diagnosis. External
appearances may often supply
us with valuable diagnostic indica-
tions, in those whose occupation it
has been to work in metals.
I propose next to speak of the
indications afforded us by the
Sanguiferous System - the pulse
the index to the Circulation is one
of the most important evidences
of disease we have. — —

Its frequency appears an essential diagnostic mark of disorder of function, from organic disease, & of different organic diseases from each other. We must bear in mind the material influence of age, climate, time of day, corporal exertion, position, &c. on ~~the~~ state of the pulse. There is perhaps no department of symptomatology in which a degree of proficiency is so seldom met with among Physicians, as that which relates to the morbid manifestations of the pulse. — The frequency, quickness, mutual relation of the pulsation, volume, tension strength &c. There are various other states of the pulse which though not easily described communicate to the experienced and diligent observer definite =

and important facts relative to the particular diseases which they characterize. A careful and close study of the pulse then will always result in the acquirement of a precision & readiness of discrimination which few who have not made it their particular object of study & observation can well conceive or credit. The pulse frequently presents varieties in different individuals, in regard with force, frequency & regularity, and it is therefore highly important for the Physician to be acquainted with these normal conditions of the circulation of perfect health. He is called in sickness, the Physician should always wait till the patient shall have recovered from the

= The irritation produced by this presence should pass away, requesting them to observe absolute silence — Having ascertained the condition of the pulse, the attention should next be directed to the organ or part in which the primary or essential malady appears to be seated — Inquiry must be made in turn relative to those structures or organs which are known to occupy the most intimate & sympathetic relation with the part principally affected. In our investigation of of disease, it should be recollected that the most prominent & aggravating symptoms are by no means always located in the part where the primary & actual malady is seated. The tongue as a most valuable manifestation of disease

next claims our attention. In examining the tongue we should pay particular attention to its color, form, surface & mode of protrusion. In the simple forms of fever the tongue is slightly coated with a white fur - A clean red tongue is conclusive evidence of an inflamed (or highly) irritated condition of the mucous membrane of the alimentary canal. In Chlorosis the condition of the tongue is very characteristic. The appearance of the tongue often affords a good distinguishing sign between tubercular Phthisis & hectic fever with cough from hepatic or gastric disease. A contracted & pointed tongue are common attendants on inflammatory affections of the brain, & its meninges. By an accurate knowledge of the different morbid states of the =

the tongue & of their concomitant morbid affections the Physician is frequently enabled to speak to his patients in a manner which somewhat excites their surprise, by indicating his distinct and accurate information respecting their disease; especially with respect to the history & symptoms. The various appearances of the tongue therefore, cannot be too highly estimated as a safe & true Diagnostic sign. A thorough examination of the teeth & gums is also important as affections of the mouth are often produced by a decayed or deseased tooth. The gums also present some marked changes; they swollen in mercurial salivation & scurvy. They become pale in diseases of debility especially in passive dropsies.

The investigation of the history of the disease is next highly important as it aids us materially in forming a correct & true Diagnosis. It teaches much of the probable progress of disease & of its effects in inducing changes in structure and devastation of the powers of the general system. The principal objects included in the history of diseases are their causes, and their course. It is of the utmost importance to observe the causes of prevailing epidemics such as contagion season of the year state of the weather location &c. and of endemics as marsh effluvia peculiarity of situation prevailing occupations &c. It cannot be doubted that a careful inquiry into the various items of the history must materially conduce both to the Prognosis & Diagnosis of all morbid affections. It is a point of

This a point of great interest and importance to study the early history of insidious diseases in order to prevent errors in the diagnosis. It is of still higher importance to have with accuracy the previous history of sudden & impending diseases, in order that we may if possible prevent them. The Metastasis or Conversion of diseases is a point that demands our special attention. In our investigations of the history of diseases, we should always strive to gain accurate information before deciding, as it is often indispensable to a satisfactory Diagnosis. Unfortunately the majority of Patients are incapable of giving a precise account of the early history & progress of their diseases; and the Physician is thus frequently deprived of the =

The light which a correct exposition of the preceding Symptoms & Course of the Case might afford. In making out the nature of a disease it is sometimes necessary to Call Your aid every kind of information which has any bearing upon the subject. — He must carefully examine all the Symptoms — must enquire into the Cause — and must take a view of all Controlling influences, as, age, sex, temperament, Constitutional peculiarities, whether original or acquired, habits of life, pursuits of pleasure or business, Climate, residence &c. Accidental Circumstances will sometimes aid as considerably when the patient is unable or unwilling to answer our questions.

The nervous system may in turn be examined — The most common —

symptom of nervous derangement is disturbed sleep; under whatever circumstances profound morbid sleep or coma may occur, it always denotes cerebral oppression from congestion or effusion, or some other cause capable of compressing this organ - Wakefulness is indicative of great cerebral irritation or exhaustion - this particularly apt to occur from sympathetic irritation of the brain depending on intestinal irritation, or exhaustion from loss of blood. Acuteness of sight & hearing occur in the incipient stage of cerebral inflammation - Obtuseness of hearing is a common symptom in the advanced stages of typhoid fever - but it does not indicate inflammation of the brain. Strabismus denotes -

Considerable Cerebral disturbance. Torpor & defect in the sense of touch if general or confined to one side of the body indicates an important state of the brain, and may be both the precursor or consequence of apoplexy. When torpor is confined to one extremity, we may infer that the ~~(diseased part)~~ nervous communication between the affected part & the "Censum Commune" had been interrupted by compression or disease of the principal nerve leading to the part. Morbid sensations are the most common phenomena of disease. In many affections indeed there are peculiar & characteristic modifications of sensibility which it is of importance to notice in a diagnostic point of view. In Tumors, disease of the mesentery an unusual

Sensibility is also sometimes a very early symptom. Pain often depends on nervous irritation differs from inflammatory pain. Spasmodic pain by occurring in transient & extremely violent paroxysms. It shoots with intense velocity, along the ramifications of the affected nerve and is not attended by swelling or increased heat & the slightest motion or pressure is apt to produce violent paroxysms of pain — Pain of the head alone is usual amongst the first symptoms of inflammation of the brain It is also one of the early symptoms of Typhus fever — It also occurs in the Dyspepsia & especially in Chlorosis, but is then attended by other symptoms characteristic of those affections. — Delirium is often present in severe fevers & in most violent affections —

in the general stupor; and in inflam- 32
-mation & disease of the brain. This also
obtained in some cases of exhaustion
by the reaction. It is generally attendant
in disease of the brain of the young ones.
It is frequent in Puerperal affections.
It occurs frequently from excessive
drinking. Meningeal affections are
usually marked by delirium. It is
highly important to the Physician
to have a correct knowledge of the
various nervous symptoms which
are so valuable in the diagnosis of
nervous diseases especially.

The next presented to speak
of the functions of respiration as
valuable signs, together with Cough
& expectoration. In making an
examinations of the chest in a recumbent
position it will be frequently found
that the functions are still free, that

that respiration is more than usually
performed by the diaphragm & that the
muscles of the chest more rarely than the
other. In inflammation of the chest
with acute pain the respiration is short
cautious & suppressed. This peculiarity
of the breathing is proportionate to & in
varies with the degree of acuteness of the
pain. In inflammation of the abdomen
with acute pain the respiration is
performed principally & often
exclusively by the chest the abdomen
remaining unmoved. In this disease
the patient may be able to rest
for a few seconds in a full breath.
By an attentive observation of the
peculiarities of the respiration
inflammation of the Pleura is
distinguished from inflammation
of the peritoneum covering of the
liver. In Phthisis Pulmonalis =

aid of expectoration and diagnostic sign of disease. Cough is thus a guide to the seat & nature of the disease and of the state of the system, although of the patient. With regard to the treatment of Cough, therefore, we may notice the following general circumstances. Patients affected with inflammation of the Pleura, Lungs, or Peritoneum — always repress the Cough as much as possible in order to obviate the great increase of pain which free coughing invariably produces in these affections. When therefore the patient is observed to make great efforts to suppress the act of Coughing the existence of local inflammation may be confidently inferred, the seat of the mischief will be determined by other accompanying symptoms. The Cough attending acute inflammation of the mucous membrane of the bronchia

lung is in a gangrenous Condition:
In Chronic Bronchitis the Sputa
often presents a White-Cream like appearance
bearing Considerable resemblance to the
friable Matters sometimes Expectorated
in small quantities in the latter
stages of Tubercular Phthisis. Mucous
expectoration appears to arise from
various sources of inflammation &
irritation of the bronchial membrane, and
is somewhat like genuine pus; but
which in its Constitution & properties
differs greatly — the character and
appearance of the matter expectorated
[illegible] [illegible] [illegible] in
[illegible] and [illegible] the [illegible]
Consideration of the ~~[illegible]~~ [illegible] in
all Chronic diseases Especially —
[illegible] [illegible] to Consider [illegible]
of Symptoms manifested by the morbid
Conditions of the Alimentary Canal. —

From the nature appearance and consistence of the evacuations we may often derive important diagnostic information. The functional derangements of the liver are in general readily distinguished by the character of these evacuations. White or clay coloured feces indicate either deficient secretion of bile or obstruction to its regular flow into the intestines. This condition of the biliary function is almost always attended with increased irritability of the stomach. In lead colic the passages are usually hard. There certain medicinal agents which may affect the color of the stools — as the preparations of iron and rhubarb. When the alvine discharges are liquid, & of a light green color, as is frequently the case in infants, the existence of too much acid in the bowels may

Be confidently inferred, Bile, as it comes from the liver, never possesses such a Coulor. It becomes green in the intestines by the action of the acid it meets with there. According to Dr. Whyne the appearances of the stools afford a good diagnostic sign between infantile Remittent fever & Hydrocephalus. In the former disease (says he) "the discharges, are generally dark brown or mud like, and extremely fœtid. In the latter they are usually gelatinous dark green sometimes black like tar & of a peculiar sickly smell."

Watery & reddish stools containing small flakes of mucous always indicate a high degree of inflammatory irritation of the mucous membrane of the alimentary canal. The morbid appearances observed in the alvine evacuations are=

highly important to the Physician in his estimation & treatment of disease and I regret to say too little attention to by the great majority.

The functional Changes of the uterine System should next be considered - these consist in the amount of principle, the suppression, the too copious flow, or the unnatural state of the discharges. In inflammatory affection it is generally very red and small in quantity; in hysterical affection & other nervous diseases, this secretion is usually copious & limpid, or but slightly colored - In diseases of the billiary organs, the urine is almost invariably tinged with bile. In dropsical affection the urine is highly characteristic of the disease. When the urine contains albumen -

This symptomatic of innervation
[illegible] of the system - The Sweet-
-comic urine like the albuminous
derives its [illegible] name from the
presence of the proximate principle
which is found to exist in it, and
which constitutes the most remarkable
pathognomonic symptom of the existing
form of diabetes. The sweetness
of the urine after micturition is apt
to produce [illegible] fear & anxiety
which increase it. The [illegible] bloody
urine in Bright's disease of the
kidney - the creamy pellicle that
floats on the surface of the urine is
considered a true sign of pregnancy
in women. There are various other
morbid changes indicated by the
urine that are worthy of being
noticed but as time & space will
not permit me to speak of them -

fully as Second like Price

merely refer to them as being well

worthy the attention of the observing

mind. The Phosphatic & Lithic

diathesis, the former is that habit

of the body which favors the deposition

of the phosphates from the urine - the

latter which may be dependent

as directly opposite to the former -

to the aqueous - is that which favors

the deposition of lithic

acid & the lithates from the urine.

These various changes in the urine

are all more or less important &

deserve to be noticed by the Practitioner,

as indicating the existence of

derangements either constitutional

or local, and as consequently

directing us in our diagnosis,

and guiding us in our treatment.

There is perhaps no subject com

Connection with the Animal
Economy which is more worthy
the attention & time of the constitutional
Practitioner, and which is more likely
to repay his researches by affording
him an indication of the State of the
functions and of the effect of the
Curative means by which he endeavours
to correct ~~[illegible]~~ their various
morbid States than that of the Urine.

Having considered
in a desultory manner the most
general Diagnostic indications of
disease as visible to the senses and
in order to complete the subject
I must proceed to speak of the
physical signs afforded in
accompanying disease. These signs
may be included under the heads
of "Palpation, Pressure, Succussion,
Percussion, Measurement —:

Auscultation &c. all of which are highly important to the Physician in identifying disease.

Palpation or the application of the Physician's hands to the affected parts, aids him to judge of the temperature of the surface — of certain physical properties of the skin — as its roughness or softness &c: and of certain internal movements, which are communicated to the hand, one of the movements is a certain thrill or vibration produced in certain morbid states by coughing, respiration &c. Another is fluctuation which is felt by the hand when percussion is made on the opposite side of a collection of fluid — a third is the movement of tumors which is sometimes made sensible to the —

The hand or the pressure with the [illegible] hand — the various changes brought by disease in the natural solidity of the infant are important phenomena to establish, and can only be appreciated by Palpation. It is generally preferable that the parts to be examined should be uncovered; a delicate linen, however, does not interfere with palpation & may often facilitate it, especially in sensitive persons.

Pressure — This is another important physical sign, which often assists us in ascertaining the seat of disease. By means of it we may discover the force of the circulation, and whether a red spot upon the surface is the result of extravasation or inflammation. It detects increased & deficient sensibility, hardness & softness —

Rarity and distinctly of sounds—
It enables us to ascertain the
existence of air in the bowels by
giving rise to a gurgling sound—
which is important in typhoid
fever. —

Succussion— This consists
in forcibly shaking the patient's
body—and observing the sounds
thereby produced— It may aid
us materially in Pneumothorax
as it indicates to us an effusion into
the cavity of the pleura both of
liquid & air— As it is pathognomic
of this disease it becomes of great
practical value— It may also be
useful in ascertaining the presence
of large Tuberculous Cavities, in
the lungs containing liquid & air—
Percussion— The application
of percussion to the surface—

of the body, with the view of eliciting sounds serving to aid the physician in two ways, first by the sounds produced which may inform him of the condition of the parts beneath — secondly by producing fluctuation or vibratory movements in liquids, by which their presence may be detected — In applying Percussion to the investigation of disease we endeavour to use a percussing body as little susceptible of sonorous vibration as possible — This valuable art seems to have been employed from the earliest times of medicine and is one of the most useful diagnostic signs — It is only to be acquired by long & continued practice study & observation. The recent labours of M. Piorry & other eminent medical men have placed this highly interesting & important sign in the proper sphere.

and every one must admit its intrinsic value - Long may it continue to attract the attention of all intelligent Physicians - none can fail to appreciate its value who have given it a due share of attention as it will repay the diligent and observing mind by unfolding to it the most difficult & obscure disease, hitherto unknown. Both the great natural cavities of the body afford particular facilities for the application of this new & simple art. The Chest from having solid, tense, & elastic walls and from containing at all times a large quantity of air essential to its healthy state, possesses many & great advantages over the abdomen in admitting the application of this method of investigation - But even in the abdomen it furnishes us with important results. In [illegible] -

and every day has added to its intrinsic value - long may it continue to attract the attention of all intelligent Physicians - None can fail to appreciate its value who have given it a due share of attention as it were seeing the different and observing them by unfolding to it the most difficult & obscure diseases hitherto unknown. Both the great natural Cavities of the body afford particular facilities for the application of this new & simple art - The Chest from having solid dense & elastic walls and from containing at all times a large quantity of air in the healthy state, possesses many & great advantages over the abdomen in admitting the application of this method of investigation - But even in the abdomen it furnishes us with important results. In percussing -

Comparatively both sides we ... be ... on exactly corresponding points, and also with the same degree of force ... under a similar angle. The patient should be in a sitting posture during percussion of the chest if possible. It is also of the utmost importance that the operator be fully acquainted with the relative sonorousness of the different parts of the chest in the state of health. Attention to these & a few other minor circumstances which I have omitted are very important to be observed. Various instruments have been devised but after all, for general purposes, the fore-finger of the left hand applied to the chest makes the best pleximeter, as it can be applied better & cause less noise than ivory & metal. It possesses

Several of the advantages of all
Piorry's method; and it has been
some few are it exclusive of its
great simplicity - However, when
there is much Emaciation his -
method is liable to mistakes, as the
sound may be modified by the
hollows existing between the intercostal
spaces - Direct Percussion in such
cases is often preferable if we
are careful in applying the
fingers so as to make them fit
accurately into the natural depressions,
and thus form one body as it were,
with the thoracic parietes - we may
use very forcible Percussion without
causing our patient much pain.
In the percussion of the abdomen
however - pleximeter is of slight
yielding makes only the
Pleximeter is necessarily used =

-growth, displacing & compressing the pulmonary substance — such as Cysts — tuberculous, encephaloid tumors &c. Tubercular deposition, or induration. Pulmonary apoplexy. Exteriorly to the substance of the lungs are all the varieties of effusion & accumulation of liquid in the pleura; — Pleurisy, — Hydrothorax, Hemathorax &c. The accumulation of liquid in the pleura & dullness may arise either from the exclusion of a portion of the air (naturally contained there, or from an intervening layer of liquid preventing the transmission of sound. There are some few cases in which the natural resonance of the chest is increased in disease — owing to an increase of the natural proportion of air — as in the — Pulmonary Emphysema of Laennec and in Pneumothorax &c. —

So much for percussion which is one of our most important Physical signs in assisting us to discover the paramount changes of structure as the result of disease.

"Auscultation" - Another of the great additions to medical science which have been made during the last half century is the brilliant discovery of the immortal Laennec whose name is justly entitled to be ranked foremost on the pages of medical history - This beautiful discovery has served to extend the boundaries of medical knowledge as much, or more than any other known invention of the age. It consists simply in applying the Ear or Stethoscope over the surface of the chest to discover or discriminate diseases by means of signs having-

relation to the sense of hearing.—
Auscultation may be either
mediate or direct; that is to say,
may be practised by means of a
stethoscope or by the direct application
of the ear. The stethoscope used
for this purpose is a simple hollow
cylinder one end of which should
be accurately applied to the chest and
the other to the auditory apparatus,
which will receive the whole of the
respiratory sounds emanating from
that portion of the chest included
within its circumference. By the
application of this instrument to the
chest we learn that the motions
of the lungs & of the heart in a state
of health, produce certain determinate
sounds & that these sounds are
modified in certain states of disease.
The first step to be taken by the =

The Young Auscultator is to learn the natural healthy sounds of the chest. It is only by experience that one can acquire a perfect knowledge of the sounds of healthy respiration; but having once acquired this knowledge, without which it would be impossible to determine the character of the sound; whether it be indicative of latent mischief or essential to the healthy functions. These changes of sound are the result of disease which produce alterations in the structure of the parts, thereby emitting different degrees of sound, which it is the object of the practical Auscultator to detect & to trace them to their causes in physical changes of structure within the chest. The sound of healthy respiration as revealed to us by the Stethoscope-

varies in different parts — existing
one situated in the pulmonary cells,
another in the larger bronchial
tubes, and a third in the trachea.
That which originates in the pulmonary
cells is audible (in health) over
every part of the chest with which
the lungs are in contact. We
are thus enabled in the living body,
to trace the boundaries of these
organs with the greatest accuracy;
and to ascertain the existence
and position of organic changes.
Whenever we can detect that
the natural sound is altered;
or no longer exists, we may be
assured that disease is present.
If the sound be weaker than natural
in any one part, we may have
room to suspect that there is some

=That there is some organic [illegible] in that part disturbing the healthy process of pulmonary expansion, and which may be referable either to slight condensation of the structure of the lung or partial obstruction of the bronchial tubes, or to some degree of displacement of the lung from the [illegible] of the chest — We should likewise bear in mind that the respiratory murmur is liable to be altered by various temporary causes, & that we should never conclude from a single application of the Stethoscope that the lungs are impermeable; because we do not at once detect the sound of respiration. By the application of this beautiful art we are taught at once to distinguish organic

from functional disorders of the respiratory organs and of the heart. We are also enabled to determine the precise situation of the lesion, its shape & extent. It is also employed in obstetrics to determine the existence & position of the fœtus in utero, & has conferred a boon of immense value on this special department of Medical Science. When the condition of the heart is examined, there must be estimated besides its soundness, the seat, extent, & intensity, both of these & other peculiarities of the natural sounds. It is by a frequent & long continued use only that one can become well acquainted with its important aid in investigating disease. It in fact establishes that essential preliminary to all rational treatment: a correct diagnosis, which

which forms "the indispensable basis
of all advances in Physic as a
practical art." It cannot, therefore,
be too highly estimated, or too
diligently & sought after by the
higher Philanthropist of Medicine.

A Clinical Report of Cases

Submitted to the examination

of the

Provost Regents & Faculty of Physic

of the

University of Maryland

for the

Degree of Doctor of Medicine

by

John Wilkins

Bright's disease

Geo. Dorsey, colored, aged 23 years, entered the Balto. Almshouse Hospital August 1st 1850 - A coachman by occupation, and of temperate habits. Previous to the last five months, he has enjoyed health since which time, he has been dyspeptic and has suffered with rheumatic pains in various joints - he has also experienced obscure and fugitive pains in the loins and lumbar region. But he was not alarmed about his condition, until six weeks since, when his face suddenly became edematous; the effusion spreading from thence over his whole body. He did not notice at any time a diminution in the quantity of his urine, but on the contrary, believed it to be augmented in quantity. He had never been

been drowsy or suffered any of the head symptoms so common in this affection - On pressing firmly over the Kidney, he complained of a dull and deep seated pain. His mucous membranes were remarkably pale. When he entered the Hospital his eyelids and scrotum were enormously distended with serum; and it was thought that all his serous cavities contained fluid. He passed a large quantity of urine, which bore a strong resemblance to muddy beer, and foamed on being passed. Upon testing it at several different times with heat and nitric acid, it was found at each time to contain a large quantity of albumen. To relieve him of the dropsical effusion the following prescription was ordered

℞ Elaterii gr. ⅛ Creasot. gutt. i Ext.
Hyoscyami

Hyoscyami gr. iij – M. & ft. pil. i – thus produced copious watery stools, vomiting, griping, and other evidences of Gastro-Intestinal disturbance. Diuretic mixture of Potassa. Squills, & Chimaphila, was afterwards administered, which had the effect of increasing the quantity of his urine and diminishing his dropsy – which diminution however was only temporary. One week after his admission he was attacked with Dysentery, which was at that time prevailing in the wards. He was harassed so constantly with tenesmus, that he passed nearly all the time straining at stool, passing only a small quantity of bloody mucus. The constant pain and discharges from his bowels, together with an entire loss of appetite, exhausted his strength. His scrotum soon became

became so much distended with serum, that the penis was completely buried in it, and in such a manner that when he passed his mine it always wet the integuments of his scrotum and thighs, excoriating and inflamming them violently. The constant suffering that this gave him, conjoined to a fixed belief that he would never recover aided very much in hastening the fatal termination. One week after the commencement of his dysentery, while endeavoring to get up from his bed to go to stool, he fell back suddenly and expired instantly

Autopsy 16 hours after death

Examination of the Head - Redness of the Dura Mater on the right side over a space of about two inches. Square in opacity of the Arachnoid and serous

us effusion between it and the Pia Mater. The medullary portion of the brain injected with red points; the lateral ventricles containing about ℥i each of serum - Examination of the Thorax: Five or six hard grey tubercles, resembling when cut cartilage, were scattered under the Pleura of the middle lobe of the right lung - several old adhesions of the Pulmonary and costal pleura - there was a little serum in each pleura. The heart was contracted and filled with fibrinous clots, the valves natural; ℥ij of serum in the Pericardium. Examination of the abdomen - Traces of false membranes upon the surface of the liver and adhesion of its anterior margin to the Peritoneum in front. Portal congestion. The Gall bladder was empty

empty and inflammation of the
mucous membrane lining the
ductus communis - Stomach
Mucous membrane altered by pale
and red, the pale portion thickened
and softened, the whole membrane
covered with a viscid and tenacious
mucus. the follicles enlarged and
presenting the appearance of
mamillonated. The mucous membrane
of the intestines appeared to be inflamed
for the greater part of its extent,
the solitary glands were enlarged,
giving to the intestine the appearance
of being studded with pearls;
the Colon was contracted in
several portions of its course,
and there was adhesion of the
peritoneum covering it's arch
with that which lined the
abdominal parietes in front.
The

The mucous membranes of the Rectum and sigmoid flexure was much inflammed and softened

The Kidneys were enlarged, very flabby and congested with venous blood. On making a vertical section, the medullary portion appeared hypertrophied. The deposit was of a yellowish color, and was not granular in its arrangement.

From the increased thickness of the cortical portion the Calyces were made to converge.

Double Pneumonia

James Thompson, colored, aged thirty years, entered the Balto. Almshouse Hospital April 12th 1850 – This man has no regular occupation, he stood at the street corners, and earned a precarious subsistance by execu-ting any small jobs that he was so fortunate as to procure. He said he lived in a small house in Camden Street, and was able to keep a fire and buy provisions regularly. He also stated that he had enough bed-clothes to keep him warm at night, but during the day he walked the streets in a state of almost complete nudity. Owing to the constant exposure to the inclement weather

and to the keen air which penetrated through the rents of his garments whilst pursuing his occupations in the streets, he was subject to colds throughout the winter season.
At the commencement of his sickness, which he dates back one month, he fell, in a fit, on the pavement, from whence he rolled into the gutter, wetting his clothes through and through: after he recovered from the fit, he walked home with the assistance of another man. From the description which the bystanders gave of his convulsions they were no doubt Epileptic. He fell with a cry, was totally insensible, foamed at the ~~it the~~ mouth, and his features were distorted. He has been subject to them since he was ten years of age, and ascribes their origin to

the practice of carrying heavy tubs of water on his head. After his fit he was confined to his bed several days, he coughed nearly all night, expectorating some rusty mucus. He say he was very fat when taken sick, but commenced losing flesh, however he was by no means thin when he entered the Hospital, and his muscles were well developed. When I saw him for the first time, he was lying on his back, with head and shoulders elevated, breathing with great difficulty, in short quick gasps, complaining of headache, and pain in the inter-costal spaces. He coughed but little, expectorating with much difficulty large masses of extremely tenacious mucus of a reddish-yellow

colour. The expression of his face was dull, and his mental faculties obscured, his skin was hot and dry, his nails of a deep blue colour, the tongue thickly coated in the centre with a light brown fur and pale at the edges, pulse 120 small, hard, and wiry, respiration 32 per minute. — Physical exploration. Percussion over the infraclavicular space of the right lung developed a clear sound to about two inches below the Clavicle from thence it was dull to the base of the lung, the dullness being more marked towards the Axilla. Behind, this lung was dull on percussion from the spine of the Scapula to its base. On auscultating this lung at its apex in front, and behind where

it was clear on percussion, nothing could be heard, but puerile respiration. Over the spaces in front and behind, where the lung was dull on percussion fine crepitation and tubal respiration were heard; the crepitation existing over a greater extent of lung, than the bronchial respiration. In the axilla the respiration was bronchial, mixed with a sub-crepitant rale. The bronchophony over the hepatized portions of the lung was well marked, and the sounds of the heart were conveyed to the ear with great distinctness. Where the fine crepitation was merging into bronchial respiration, the tubal sound was more marked during expiration. Percussion over the upper lobe of the left lung, in front and behind, gave a clear sound.

The lower lobe was dull, the dullness being more marked behind. On auscultating the clear sounding portion puerile respiration was heard, and over the lower lobe in front, fine crepitation; behind, fine crepitation mixed with bronchial respiration. Treatment. Blood letting was ordered to be carried almost to syncope, and when reaction came on was followed by eight cups to the thorax; and the following formula ℞. Tart. Antim. gr. IV Aquae f. ℥viii M. A tablespoonful every two hours. Although a large orifice was made the blood flowed slowly and in a small stream until about a half-pint was drawn, when it stopped completely; not more than two ounces were drawn by the cups. This

small bleeding had its effect on the pulse, which became feeble and compressible. This man's condition did not vary much for three days, when his respiration was reduced to twenty-five per minute and his pulse to ninety; his tongue soon became clean, and his sputa copious and concocted. Where bronchial respiration had been heard a moist sub-crepitation now existed, and the fine crepitation had given way to the natural respiratory murmur. One week after he was admitted he was able to walk about the room, and was discharged from the Hospital two weeks after his admission, convalescent.

Pleuro-Pneumonia

John Dorsey, aged
twenty nine years, entered the Balto.
Almshouse Hospital, April 1st 1850
A man of good muscular develop-
ment, and heretofore in the enjoyment
of good health. He had been living
in the Hospital in the capacity of
assistant nurse, and has no recollection
of being exposed to cold, but got
his feet wet some time since, whilst
engaged in scrubbing the floor. He says
he has not felt well for two weeks,
he has been troubled with pain in
the head, and a feeling of constriction
across the sternum, lassitude & weariness,
and with a cough and stitching
pain below the left nipple. His
skin was hot and dry, his breathing
halting from the pain below the
nipple - pulse 100 beats per minute -

full and strong. Percussion on the right side gave a clear sound. The respiration in this lung was natural, except at one or two spots over the larger tubes, where there was a sonorous rhonchus. The left lung was resonant in front but behind, there was dullness over the lower lobe. The respiration was rude over the resonant portion of this lung. Behind fine crepitation could be heard from the angle of the scapula to the base of the lung, while in front and over the lower half of the left side of the chest, a loud friction sound was audible, very much resembling the creaking of a leather shoe. Treatment - He was first bled to twenty ounces, and was then put upon one fourth of a grain of Tartarized Antimony

every two hours. The first dose produced much vomiting and nausea, but tolerance was established after the second was administered. As his bowels had been constipated a saline purgative was ordered. The second day the pain in the breast had ceased, the skin was relaxed and moist, the pulse was 95 and soft and his bowels had been freely moved. The complaint of being very weak, The respiration was now moist and the friction sound much less audible. The patient improved rapidly under this treatment and at the end of the first week after the commencement ~~of the treatment~~ was convalescent

Typhoid Fever

John Murphy, aged twenty-nine years, was admitted into the Balto. Almshouse Hospital July 15th 1850. A farm-hand. His sickness commenced two weeks since with malaise, lassitude, a feeling of weariness, headache, ringing in the ears, intolerance of light and sound, and wandering pains in the limbs. He never had a distinct chill, but had horripillations down his back, followed by heat of skin which passed off, after the appearance of perspiration, which was confined to the neck. He took a dose of salts one week before he entered the Hospital, since which time his bowels have been freely moved five or six times

a day. The decubitus was dorsal and his face and neck were suffused, his eyes half closed, dull and glassy, the pupil sluggish, and the conjunctiva of a yellowish hue. The tongue dry and coated with a dark fur and his gums with sordes. When told to protrude his tongue, he would invariably double it up by catching its point against his lower teeth, when fully protruded it was tremulous and he would neglect to return it to his mouth without he was told to do so. His skin was hot and dry, giving a pungent feeling to the fingers. His abdomen slightly tympanitic with gurgling in the right iliac fossa. There was absence of rose-colored spots on the skin, which was free from all kinds of eruption

and slightly jaundiced: The pulse was 37 and dichrotic. Sonorous and sibilant rales were heard over both sides of the chest and he expectorated clear mucus resembling the white of egg. When examined the next evening, he had high fever, and was slightly delirious and so restless as to be with difficulty kept in bed. The pulse was 130 the eyes brilliant, the heat of skin increased, and he complaining of an intense headache. The next morning he was almost free from fever, he had passed a restless and sleepless night, and was now just going to sleep. He had no appetite and suffered from nausea. The next evening when his exacerbation came on, he was

sponged with cold water, with
great benefit. Dover's powder was
prescribed and he passed a better
night. His bowels were continued
to move twice or thrice daily, his
tongue in a few days ~~began to~~ became
clean at its edges and moist,
and he protruded it without difficulty.
Gurgling could no longer be heard;
and his hypnpanites subsided.
Ten days after his entrance he was
allowed to wear his clothes, and walk
a little about the ward, and in
a few days more was discharged
convalescent.

Hepatitis

Edward Laroque aged twenty three years entered the Balto. Almshouse Hospital Jan. 10th 1850 - A farm-hand by occupation This man was much jaundiced; he had pain in the left shoulder and obstinate nausea and vomiting. The pain was dull heavy and deep-seated with an occasional stitch. his bowels were constipated, and the stools when passed were clay-coloured. The pulse was hard and wiry - Diagnosis Inflammation of the concave surface of the left lobe of the liver where it is in contact with the Stomach - Treatment - Venisection ℥viii. ℞. Sulph. Magn. ℥i. Aqua ℥iv S. Tobe taken at once. Eight Cups over the right hypochondrium - Discharged cured the sixth day after his admission

Colica Pictonum

Jas. Bartlett aged 20 years entered the Ballt. Almshouse Hospital Feb. 12th 1850. This man had a blue circle over his incisor teeth His belly was flattened, and his bowels were constipated, his breath foetid and offensive; he suffered great pain in the umbilical region which was relieved by pressure. Diagnosis - Colica Pictonum. Treatment Rx. Sulph. Magnesia Zi Sulph. Ammonia et Potassa Zi. M. S To be taken at once - Sulphuric Acid lemonade was given as a drink during the day. Discharged cured on the eight day —

An
Inaugural Dissertation
on
Infection and Epidemics
Submitted to the examination
of the
Provost, Regents and Faculty of Physic
of the
University of Maryland
for the degree
of
Doctor of Medicine
by
Louis Blackall Jr

1851

To

Doctor Samuel Chew

This Sheet is respectfully inscribed

as a slight token of Gratitude for the knowledge

that I have received from his Writings

and as a Tribute of respect for his

eminent qualities as a Gentleman

I undertake with diffidence a subject, about which there ever has been and still is so much doubt and intricacy, a subject which has so often given rise to much contention among medical men -

It seems strange, that, although in the last few years Science has been making rapid strides towards perfection, and many of those heretofore inexplicable questions relating to Medicine have been made clear and easy, in spite of great research and the labour of years this subject should still remain involved in obscurity -

The reason of this appears to me to be evident; for lately all who have considered this subject have fallen into error by supposing that the words Contagion and Infection are synonymous. Now in my opinion these words do not and can not mean the same thing, and should never be con=

founded. It will be sufficient if we examine their derivation, in order to be convinced that they should have an entirely different meaning. Contagion (from con and tango) signifies, that in order for a person to take a disease from another, that person must be brought into actual contact with the one labouring under the disease.

Infection (from inficere to infuse), properly means, that something has been infused into the Atmosphere, by the agency of which it becomes changed from its natural state and is rendered impure.

It is proposed in the following paper to show, that there are two distinct classes of diseases, differing materially from one another in their character and in their nature, and that the two distinct terms mentioned above should be applied to these distinct classes of diseases. Thus promoting the cause of medical Science

and enabling us to arrive at more correct conclusions by separating that in our minds, which is separate in nature. It is further proposed to suggest a Theory or Hypothesis that may serve to explain some of the phenomena connected with infectious diseases, which have heretofore, I believe, been deemed inexplicable.

The material difference between contagious and infectious diseases consists in this; in the former the seeds of disease have their action directly upon the constitution, that they do not affect in the least the natural condition of the Atmosphere; while in the latter these seeds of disease are incapable of producing the disease directly in the human constitution, but they change the natural state of the Atmosphere, and this changed condition will cause injurious effects upon the living system.

We know that those diseases, which

are strictly contagious, such as Syphilis, Itch, Cow pox, Hydrophobia and some few others are never infectious and can never be epidemic; while all infectious diseases, from their very nature, do become, under certain conditions of the Atmosphere, epidemic. And so general is this law, that we cannot hesitate to say that it is the surest means which we have for distinguishing Contagious from Infectious diseases. For never in the annals of Medicine do we read of an epidemic Syphilis or an epidemic Hydrophobia, but I know of no other diseases, which are not strictly contagious, that have not been often and again epidemic in some part of the world

Again, it is acknowledged that contagious diseases can have no other origin than that of an animal poison. "To say that a febrile disorder is contagious, is the same thing as to say, that it is produced by an

animal poison". We have here a plain and good definition of Contagious matter. In order that any disease may be capable of being arranged under this class, it must have its origin entirely independent of Atmospheric changes and impurities; it must arise from a peculiar diseased condition of the secretions of an animal.

If then it is allowed that only those disorders should be called contagious, which arise from the application of an animal poison, and only those, that are incapable of assuming, under any circumstances, an epidemic form, we shall at once perceive that the number of such diseases will be very small, and that many, which are now spoken of as contagious should rather be considered as infectious.

Let us take, for example, the malady Small Pox, which is considered to be "most Rankly contagious, and as arising from

from no other source than Contagion" (Thomson)

"We find that the same Author, who made the above unqualified assertion, goes on to say, that where it (the Small Pox) is Epidemic in any place, that many instances of it occur, which we can by no means trace to Contagion - Dr Gregory, tells us, that of the numerous cases received into the Small Pox Hospital, (to which he has long been Physician) not one in twenty is capable of being traced to any known source of infection, the disease being described by the patient to cold, fatigue, change of air, or some other innocent circumstances. Again, Doctor Trotter says, another thing well worthy of notice is, that Small Pox, which is so much contagious, and which has at present no other source besides Contagion, has its alternate periods of slumber and of activity; and a little further on, "the strength of the contagion, and the severity of the disease run

from no other source than Contagion" (Watson)
"We find that the same author, who made the above unqualified assertion, goes on to say, that where it (the Small Pox) is epidemic in any place, that many instances of it occur, which we can by no means trace to Contagion - Dr Gregory tells us, that of the numerous cases received into the Small Pox Hospital (to which he has long been physician) not one in twenty is capable of being traced to any known source of infection, the disease being described by the patient to cold, fatigue, change of air, or some other innocent circumstance. Again, Doctor Watson says, another thing, well worthy of notice is, that Small Pox, which is so rankly contagious, and which has at present no other source besides Contagion, has its alternate periods of slumber and of activity; and a little further on, "the strength of the contagion, and the severity of the disease vary

at different periods of an epidemic" - Now Doctor Watson makes no attempt whatever to explain away these contradictions. We find that he commences by saying that Atmospheric influences have nothing to do with the Small Pox, and concludes by proving that it has a great deal to do with it.

Doctor Wood, in his article on the Small Pox, remarks, It is an interesting question, whether any other cause is capable of producing Small Pox, than its peculiar contagion. It certainly appears often to occur epidemically. After an extraordinary exemption perhaps for years, a city or district of country is suddenly invaded by it, and continues to be infected for a longer or shorter period, after which the disease again disappears, and for a time ceases to be heard of -

What is above remarked of Small Pox is equally applicable to Egyptian Ophthalmia

and some other epidemics. We find many endeavouring to prove Erysipelas a contagious disease, and yet we know of no disease, that so often assumes an epidemic form; and it is the same with reference to Typhus and Typhoid Fevers, but we also find that one of the strongest advocates for the contagious nature of these fevers is compelled to declare "that to assert that contagion is the only principal capable of producing the disease evinces a very limited notion under which fever is generated". In fine, we must see that not only those mentioned, but that every disease, which assumes an epidemic form, and is produced in other ways than by the actual application of the poisonous matter cannot properly be placed in the class of contagious diseases; for supposing those disorders, that are so called, to be contagious, and that they depend entirely upon a peculiar contagion for their origin and extension

, it will be impossible to answer or explain satisfactorily the facts which present themselves in these very disorders—

"Why does the strength of the contagion and the severity and fatality of the disease vary at different periods of an epidemic"? Why are some contagious diseases much more prevalent during some years and seasons than at others? "Why are there such great varieties in the general character of the symptoms that occur in different epidemics of the same disorder"? Why does the disease die out before it has affected all those who are capable of receiving it? How is it to be accounted for that when a disease makes its appearance in a country it spreads with such great rapidity? We learn that in a short time after the introduction of the Small Pox into the New World, three millions and a half of people were destroyed by it. Can we suppose that such a vast number of persons had communication with others, that

were infected? Are we not told, that many are taken, to whom it is impossible to trace any source of contagion? I ask if it is not impossible to explain these facts? "These differences in the prevalency of the disease, and in the character of its symptoms are not to be explained by any variation in the exciting cause, which is a definite animal poison"

Now if we keep clearly in view the distinction I have drawn, and consider all diseases that present themselves in an epidemic form as infectious or as having an origin in atmospheric changes, we shall find that all those facts, which have heretofore appeared so unaccountable may be explained, or referred to one general law

All acknowledge that the Atmosphere is rendered impure after receiving the vitiated emanations of disease, yet they never seemed to have considered what was the action of this poison, but have taken it for granted

that the emanation from whatever source they may have arisen are neither changed, or have influenced in any degree the natural state of the air, and consequently that this poison must have only a very limited action, and, of course, have never explained the many remarkable phenomena attending the propagation of diseases, more especially when diseases assume an epidemic form

When I speak of an infected atmosphere I do not mean to imply (what it generally understood) that this atmosphere contains particles of disease floating about, and having no action unless it meets with some living being upon which it can act; but I mean that the atmosphere itself is the very object upon which these emanations exert their influence, and it no longer capable of being breathed by living creatures without producing within them various disorders, according as the (the atmosphere) may be changed by the peculiar nature of the poison

acting upon it. But to be better understood; we
suppose that the emanation from a person sick
of some disorder act upon the atmosphere just
as the yeast upon the dough. These diseased
particles form a ferment, which, if received into
the air, is capable of changing entirely its
former state, and rendering it able to light up
disease in all who may come under its influ-
ence; and as the dough, which has been injected
by the yeast, will, if added to another mass of
that article, still exert the same influence, so
may these impure particles of air furnish addi-
tional ferment to fresh particles, and so may
be increased ad infinitum.

Thus a few particles of disease, if received
into a condition of the atmosphere fit for their recep-
tion, will be all that is necessary to light up an
epidemic, and this epidemic will last as long
as the air remains in this condition, and will ex-
tend as far as it shall be infected. But it is neces-
sary that the atmosphere should be in a pe-

culiar condition before the emanations from a sick person can act as a ferment.

This view is not at variance with the known fact, that some diseases are much easier communicated from person to person, and, as it were, conveyed from place to place than others. The seeds of a disease are produced by an impure air acting on the constitution of a particular person, and after being thus generated, it is reasonable to suppose, that the exhalations from the diseased person will be much more powerful than the particles of disease which may be floating about in the atmosphere in a small quantity. The air may not be so impure as to be capable of producing disease, except in those who are predisposed; but when this atmosphere does produce its effects upon those who are predisposed, it being received into their system and acting as a ferment shall become much more capable of producing disease in others; so that many of those who were not infected by the few particles scattered

about in the air, receiving a larger quantity from these infected persons, shall sicken

As we apply what has been said to the disease, Small Pox, which, in a great majority of cases, only arises when a person has been brought into close connection with one infected with the same malady - We suppose that the cause of this disease originates from the diseased secretions of one laboring under the disorder, which cause operating upon a person susceptible of its impression affects the whole system of the patient; the secretions from this person, being strongly charged with the virus, acts as a ferment upon the surrounding atmosphere. The atmosphere that is infected by a single individual might not be so strongly charged as to produce the disease unless in the immediate vicinity of the patient, or unless in a habit greatly susceptible of the impression of the poison but when a number of cases occur within a limited space, then I conceive that the

atmosphere might become so charged by the action of the poison upon it, that all whom it exposed to its influence would be in danger of an attack, and under these circumstances the direct action as a ferment upon the atmosphere might enlarge its deleterious influence to a considerable extent. And in this way we can easily account for the disease appearing at some seasons sporadically, while at others it assumes an epidemic form. In the first case the atmosphere is not so constituted as to be affected by the emanations of a person labouring under the Small Pox, on the other hand, these emanations act as a ferment, rendering the whole impure.

So in the same way we can account for the suddenness with which an epidemic occurs, after the arrival at the place of one sick of some disorder. This person arrives just at the time when the air is in an impure state, requiring only a little ferment to make it capable of producing

disease, the exhalations from this sick man may be just the leaven required, and, consequently, an epidemic follows.

What do we observe in Remittent and Intermittent fevers, fevers that depend entirely upon atmospheric causes? Do we not notice that these fevers often occur in a sporadic form during some seasons, and in others the inhabitants of whole districts become unhealthy? Does not this teach us, that those conditions of the air which are capable of causing deviations from health may be confined to a small space, or may extend over a large portion of country.

Adopting this hypothesis we have a clue to the mysterious nature of Cholera, Influenza, Plague and all other epidemic diseases. We know that these facts in these diseases, which have puzzled all who have attempted to explain them; for heretofore these facts have appeared to contradict each other. Let us consider a few of them. Those who consider Cholera as a contagious

disease conceive that they are able to prove their assertions by the following argument, they say that a considerable portion of attacks have taken place in individuals shortly after communicating with the sick, or exposure to the emanations from the dead bodies, and, in part, from a few examples which have occurred of a disease appearing in parts of a Town or neighbourhood where it did not previously exist, on the sickening there of persons who had communicated with the infected districts. But, on the other hand those condending for the contrary assert that many persons are attacked, although there had been no communication whatever with infected persons or places. Now these assertions appear to be at variance with each other, but I think that they may be explained, if we grant this Theory to be true.

Just before the occurrence of an epidemic, the air every where is changed from its natural state that, extending over some portions of country, being

more changed than the atmosphere of other parts. In some places these changes may not be carried to such an extent as to cause disease unless a ferment be added, and, consequently, these places will remain entirely exempt as long as it is not visited by persons coming from an infected district. While in other portions of country the air has become so much diseased, that a small portion only of the leaven may be sufficient to cause an epidemic

I will now endeavour to account for some of the curious circumstances attending diseases. There has been a curious fact, noticed within the last year or two, in regard to Typhus Fever. Until a year or two since, in all cases of this disease, which have occurred in this country, the poison has been traced as coming from the old world, but lately the disease has sprung up in persons, who have always lived on this side of the globe, and who have had no communication whatever with persons who may have brought the disease. I suppose that the fever as it occurs in the old world owes its propagation to a peculiar condition

of the atmosphere, and it is probable that in those, which in this country, where the disease has occurred the atmosphere has been gradually changing and has assumed a condition favourable to the development of Typhus Fever.

But this can be further borne out by many other facts

When the Small Pox is prevailing Measles, Scarlatina, Chicken Pox, &c are very apt to be rife at the same time This shows that the difference in these disorders may depend only upon some slight difference in the condition of the air, but, on the other hand, it is very rare a occurrence that two epidemics of different natures, as for instance, the Cholera and Small Pox, should rage at the same time, and place

Again, we are often forewarned of the appearance of many diseases, as epidemics, by the occurrence of sporadic cases of the same disease in a milder form, or even different disorders,

or intermixing, in its symptoms the nature of the epidemic which is approaching; the same is also noticed when an epidemic is receding. — So it sometimes happens, that places, that have been visited regularly every year by an endemic, have been entirely exempted, or the disease has been very much modified after the occurrence of some epidemic. — It has been noticed in Southern Countries, where, before the Cholera of 1832, Remittent and Intermittent Fevers raged with peculiar violence, that since that time, those fevers have been of comparatively rare occurrence and very mild. Now this cannot be accounted for in any other way than by supposing that the condition of the atmosphere were completely changed by that Epidemic.

It has also been remarked, that generally before the occurrence of an epidemic, another has preceded it a short time before. The Influ=

enza made its appearance a short time before 21
the Cholera of 1838

Another fact worthy of mention is, that many diseases only appear at certain temperatures, and in certain climates. The Plague is confined almost entirely to Eastern Climates, and "does not spread when the temperature is below 60°, or above 80° Fahrenheit." The Small Pox will not spread in Iceland. Cholera is a very rare disease in the Winter season, and is also generally confined to countries of high temperature. "Typhus Fever, Measles and Scarlet Fever are said to be of extremely rare occurrence in the intertropical regions".

Before the commencement of an epidemic, it is often perceptible to our unassisted senses that some change is taking place in the condition of the atmosphere. Among the phenomena relating to the weather, which seemed to have had a connection with epidemic outbreaks, either as precursors or attendant signs, we

may make extraordinary vicissitudes, easterly winds, thick or offensive fogs, and diseases often of a similar kind among horses, dogs and cattle" (Cyclop of Pract Med) De Jussieu remarked that the Influenza of Spring 1733 appeared in France immediately after offensive fogs, more dense than the darkness of Egypt - And so it is with reference to other diseases; and it must be allowed that these perceptible changes in the atmosphere are instrumental in causing disease -

Now I think that these facts, and these are only a few of those which might be brought forward, prove conclusively that an infected or diseased condition of the air is the great agent necessary for the production of many if not the most of those diseases which are now considered to be contagious

And reasoning from Analogy we find a most powerful argument in support of this Hypothesis. We know that the

laws regulating animal and vegetable life are exactly similar. Vegetable life like human life "begins, progresses and terminates"; it has the same power of growth and the same power of reproduction. Under favourable circumstances it flourishes, while under others it fades and perishes, and just so is it with the life of animals. In every condition and period of their existence both acknowledge one and the same law. Now let us observe what wonderful changes, a slight deviation from certain conditions of the atmosphere does produce in the vegetable world.

In passing through a large tract of country, we shall notice the growing crops of grain to be in a most prosperous condition to day; tomorrow we may pass along the same district and shall find that in that short space of time a remarkable change has taken place; we will with difficulty find a single stalk that has not been infected with

disease. But what is still more remarkable 34
we may notice that while the grain of some farms is entirely destroyed, that of the farms adjoining may escape entirely, or be very slightly affected with the rust. Again in those years in which there has been no epidemic, you will see here and there a few diseased stalks. Now no one will deny but that these diseases are owing solely to atmospheric causes, and if the vegetable acknowledges so clearly these changes, is it not philosophical to conclude that those phenomena attending the epidemics which affect the human race are to be explained by supposing that the atmosphere is capable of having the same action upon the animal system?

An inaugural dissertation on Caloric Submitted to the examination of the Provost, Regents, and Faculty of Physic of the University of Maryland, for a degree of Doctor of Medicine.

By Thos. H. Dunn.
of Chesterfield Co.
Virginia. 1851

To

Professor: Wm. E. A. Aitkin.

Sir,

This humble Essay, is respectfully dedicated to you, by your friend and pupil,

Thos. H. Dunn.

There are in nature various agents acting upon all matter, without producing the slightest change in their weight; these are Heat, Light, Electricity, and Galvanism, the four so-called Imponderable Agents. One of the four, I have chosen as the subject on which I shall make a few remarks, for the examination of the "Medical Faculty of the University of Maryland" — viz: on Heat.

The term heat is improperly used to express both the Imponderable Agent, and the sensation produced by it.

Philosophers have therefore introduced the word — Caloric (from Calor, heat,) to denote the agent, and retained the form Heat to denote the sensation.

Heat is imponderable, producing no change of weight in a body, and should therefore be considered as a condition and not as an agent, and the same of the other imponderables.

The effect of Caloric upon a body, is to separate its parts thereby, producing expansion. It effects them, either Liquids, Solids or Gases, Liquids more than solids, and Gases more than either. Gases are expanded 1/492 of their volume for every addition of a degree to their temperature.

The practical effects of expansion by heat, are daily seen. The blacksmith makes too small for the wheel, its tire, then heats it, it expands, and thus expanded, he fits on the tire, and when cooled, it contracts and clamps the wheel tight.

The railroad contractor lays down his rails, so as to be separated, at the ends sufficiently to allow for expansion in warm weather.

The addition of the same quantity of heat, to different solid bodies, produces different degrees of expansion. And the same addition of heat to the same solid at different =

brass bar expands more than the iron bar. The brass being fastened to the iron cannot push beyond it, both therefore bend upwards as in figure (2) drawing up the pendulum which was also lengthened by the heat. The pendulum however is fixed so as to slide through a hole at (D) and from this hole, it vibrates constantly, and the mechanism is so adjusted as that the part of the pendulum drawn up above (D) in the figure, exactly compensates for the elongation by the heat, thus leaving the part below (D) constantly the same.

A similar mechanism is used in adjusting the balance-wheel of a clock.

"In watches the governing power is a horizontal weighted wheel, set in motion in one direction by the machine itself, and in the other by a fine spiral spring. The rate of going depends greatly on the

diameter of his wheel, and the diameter is of necessity subject to variation by change of temperature. To remedy the evil, thus involved, the circumference of the balance wheel is made of two metals having different rates of expansion, fast soldered together, the most expansible being on the out side. The compound rim is also cut through, in two or more places. When the watch is exposed to a high temperature, and the diameter of the wheel becomes enlarged by expansion, each segment is made, by the same agency, to assume a sharper curve, whereby its center of gravity is thrown inwards, and the expansive effect compensated."

A commonplace proof of this principle is seen by pouring hot water into a thick glass tumbler; the inside of the tumbler expands before the heat is communicated to the outside, and produces a crack, or even rupture

Differences of temperature may be measured by our sensations, but they are so variable as to be an inadequate mode of judging.

Thus a person who has been confined to his bed with a fever, goes out into the warm spring air, and may complain of excessive chilliness, while others feel very warm - a person going into a cave in summer, finds it very cold, while in winter, it is very warm, although the actual variation of the temperature of the cave, is not one degree more in summer, than in winter.

The phenomenon of expansion of bodies by heat, affords us a method of measuring variations of temperature.

In the 17th century, Sanctorius Sanctorio constructed a thermometer by means of a bottle, through was passed a glass tube; this tube extended into the bottle below the surface of a small quantity of liquid; when the temperature was raised, the air in the bottle expanded and pressing upon the surface of the liquid, forced a column of it up this tube, and the height of this column was proportional to the increase of the temperature.

This thermometer was objectionable for two reasons; 1st the upper part of the tube being open, the air exerted a pressure upon the surface of the liquid, and as this pressure is=

constantly varying, it affected the height of the column in the tube; secondly owing to the great expansion of air, it would require a tube of such a length to measure any great increase of temperature, as to render the instrument very inconvenient.

Leslie, constructed an instrument, called the "Differential Thermometer", measuring the difference in the temperature of bodies near each other. It consist of a tube bent as in the figure, with a bulb at each end full of air. Suppose a heated body be placed in contact with bulb at A; the air expands, forces the liquids down one leg of the instrument, and up the other in the tube, and the different heights of the two columns represent the proportion of heat of the body at A, & the one at B.

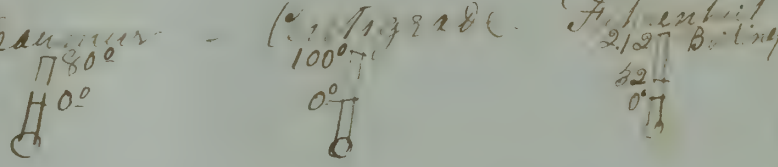
Fahrenheit of Dantzic, first invented a mercurial thermometer.

It consists of a bulb and tube filled with mercury, and attached to a graduated scale. The following is the mode for making such a thermometer.

Take a glass tube of minute calibre, and softening one end by means of a lamp and blow-pipe, blow a small quantity of air into the tube while the end is still melted; and this end will be inflated into a bulb; now to fill this bulb with mercury, the bore of tube being too small to admit of pouring it in, heat the bulb thus expanding and driving out a portion of the air in it; plunge the open end into a vessel of mercury; the air in the bulb cools, condenses, and would= turn to the next page

leave a partial vacuum, but the mercury, rushes up and fills this vacuum, a small quantity being thus introduced into the bulb. Take the bulb now, and boil the mercury contained in it; this produces a steam which will drive out all the air in the bulb, now plunge the open end of the tube into mercury again; the steam condenses, a vacuum is formed, which is immediately filled by the rising of the mercury, and we have the bulb and the tube completely full of mercury. Now raise this mercury to such a temperature as to fill the tube to the very top, and in this condition, seal up the end of the tube by means of the blowpipe. Now having attached this bulb to a metal plate, = to next page

Plunge it into ice water, and mark on the plate the height of the mercury, plunge it into boiling water, and again mark the height of the mercury. Then divide the intervening space into equal parts according to the scale you use. If Reaumur into 80°, if Fahrenheit into 180°, if the Centigrade into 100° marking off also 32° such parts below the freezing "Point" thus =



Fahrenheit's reason for marking at the point 32° below the freezing of water, was that same Arctic explorers found the mercury descended to that point, and no farther and he supposed at that point, there was no heat. He however mistaken, for a degree of heat has been obtained= to the next page

= Two hundred degrees below 0. To con=
vert any number of degrees on one scale
to the corresponding numbers on
the other, we have these formu=
las: $\frac{9}{4}$ of Reau + 32° = Fahr $\frac{9}{5}$ of Centig +
32° = Fahr $\frac{5}{4}$ of Reau = Centig.
All liquids are not equally suitable
for thermometers, because they expand
unequally at different temperatures,
for equal addition of heat; thus take
the middle point between 32° & 212°
Fahr; it is 122°; you will find that
water expands less when heated
from 32 to 122, than from 122 to 212.
Were water thus used in Thermo=
meters, the degrees on the upper
part of the scale, should have
to be made larger than the
lower. With mercury however the
difference of expansion at different
temperatures is so small, that it may=

on the next page

be negligible in lopping off the scale, and for this reason mercury is the most suitable of all liquids for this purpose.

"The mercurial thermometer may be made to indicate temperatures which exceed 212°, or fall below zero, by continuing the degrees above and below these points. But as mercury freezes at 39° below zero, it cannot indicate temperatures below that point; and indeed, the only liquid which has been used for such purposes is alcohol."

"It has been observed that mercurial thermometers slowly change their zero, which uniformly becomes higher than at the time of graduation. This phenomenon due to a diminished capacity of the ball, has been ascribed to the atmosphere continually pressing on its exterior, while a vacuum exists in the interior of the tube.

As the principal contraction occurs after the tube is sealed, it is proper to allow some time to elapse between the heating and graduation of the instrument."

"Mr. Person has found that the elevation of the zero is very great when the instrument has been exposed to a high temperature for some hours. Former observers have tried the effect of a temperature as high as 300°, allowing the instrument to commence cooling immediately after reaching that point; in this case the rise of the zero was only about 1°; but M.P. operating at 140°, and maintaining that temperature for several hours, obtained an elevation of 12°, 15°, and even 17°. After such prolonged heating he thinks that farther change is probably prevented, especially if sudden fluctuations be avoided. It is obvious from these facts=

That no mercurial thermometer, however accurate when first conducted, can be relied upon after long use, and especially if exposed to extremes of temperature, unless its scale be rectified from time to time by experiment."

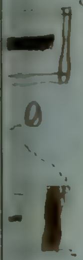
But these thermometers will not measure high temperatures for plunge them into melted iron, and the mercury expands so as to burst the tube.

Instruments have been invented, called Pyrometers, for this purpose 1st Wedgewood's 1780 &c, a porcelain manufacturer found that by making fine clay into blocks, and exposing them to heat, they contracted, instead of expanding; this was owing to the expulsion of water from between the particles.

He then took a block of brass, with a wedge shaped groove cut in it and he made blocks of clay to fit the groove.

at a heat in bringing them to fourth they slipped farther and farther up the groove, in proportion to the intensity of the heat applied.

Secondly (Daniell). He took a case of black lead, which is little affected by heat. In it he cut a groove (fig 1) in which was placed a platinum bar; resting against a; firmly against the end b of this platinum bar, was placed a block of porcelain; which passed through a tightly fitting porcelain case bc, the ~~use~~ of which the latter was to prevent the porcelain bar from slipping back, when pushed out. Placing this case in the fire, the platinum expanded, pushing out the porcelain bar, in proportion to the intensity of the heat.



The expansion of the platinum bar was however too small to be measured.

the firebase, before placing the case in the fire, placed the part of the case against the beam A B, allowing the force bar to push the index E D; marking the place of the index when heating the case, and in the same manner afterwards, the arc marked over by the index marked the proportional intensity of heat. By this instrument the melting point of cast iron was figured at 2970 Fahrenheit, and the greatest heat of a wind furnace at about 3300°."

If a metal rod be placed with one end in the fire, the middle will be heated gradually more and more, and after a while the other end will become so hot as to be insupportable. Here the caloric is transferred along the rod of metal, from particle to particle, and this property of a body is called conduction.

The first conducts slowly the heat from your hand, and the latter much more rapidly, producing a feeling of cold, although both bodies be of the same temperature. Thus a silver teapot is furnished with a wooden handle, otherwise the handle would become so warm as not to be touched by the hand.

Liquids conduct heat so very slowly, that it was long supposed they had not conducting power at all. Dr. Hope took a funnel shaped vessel full of water, and introduced through the bottom of the vessel an air thermometer, the bulb a very small distance below the surface of the water. He then burnt ether on the surface of the water, and after on the next Page
some time, he found the thermometer

to give a slight indications of heat. Some persons objected to this experiment, saying that the flame of the other, heated the sides of the containing vessel and this heated the lower portion of the vessel which rising heated the bulb of the thermometer. Dr Hope then made his vessel of ice, which is a perfect nonconductor of heat, and found the same result as before.

If heat be applied to the bottom of a vessel containing liquid, the particles at the bottom are heated; these being made lighter by the application of heat, rise, give place to the others, which in their turn are heated, rise and away until the whole liquids boils.

This is called convection.

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This property is taken advantage of in warming buildings; there is a building through which a pipe runs, commencing on the top of a boiler, and after going through the building, terminates in the bottom of the boiler. The boiler and the tube are filled with water, and on fire being applied to the boiler a current is produced, which running through the tube upwards in the direction of the arrows, and down through the building, into the boiler again.

Airs have a rapid power of convection, but very minute power of conduction.

Count Rumford, placed a hot thermometer in a vessel full of air, and noted the time of cooling; he then wrapped it first in cotton, wool, silk, fur &c; wrapping

and found that the time of cooling in each case was different. This explains why wool is warm from its containing in its interstices a great quantity of air. If you take hold of it, and press it strongly, so as to drive out all the air it will make a poor covering. For this reason, snow is a warm covering, because being full of air it does not not allow the earth to be cooled below 32°. Captain Parry, when going on an Arctic voyage, to save the trouble of carrying bedding sufficient for his men, had made a number of oil-silk bags, provided with stop cocks. At night these being blown up, served instead of the warmest kind of covering. When air is heated, it becomes lighter than that which surrounds it, & therefore rises.

The aëronaut following the example of Montgolfier, takes advantage of this principle in making a balloon, which consist of a bag of air, under the mouth of which a blaze is kindled; the air contained, expands, and rises with the bag and the attached car.
It is also on this same principle that a draught is produced, in chimneys. When the fire is kindled, the air in the immediate neighbourhood is heated, and going up the chimney, the air from the room rushes in to fill its place.
I have seen the same principle used in my immediate neighbourhood, in ventilating mines by the means of shafts.
It explaines also the cause of sea and land-breezes on an island.

There is a time of the morning, when the water and the land are of the same temperature.
The sun acting upon both, owing to their different power of conduction, it heats the water less than the land.
About noon the air over the land being warmer than that over the water, the former rises and the latter rushes in to the land to fill its place, giving rise to the sea breeze. After a while, as the sun ceases to act on them, they both cool over, but the land so much faster than the water, the latter is soon the warmer of the two, and the air over it rises and over the land rushing out to fill its place producing the land breeze. Trade winds blow constantly from the = next page

north and South towards the equator. The sun heats the earth at the equator more than any where else; the air over this zone is then constantly rising, the air from the north and south rush-es in to supply its place. But this air coming from the poles, has not the same velocity in an easterly direction as that of the equator, because of the difference of rotatory velocity of the earth at these points. The air then coming from the poles to the equator, falls back as it were, or moves in a northwest and South-west direction.

Calorie is conveyed from one body to another by a means called radiation which differing from conduction or convection, consist in rays of heat darting from

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one to the other, through the intermediate space. Conduction and convection, need the intervention of material particles, but radiation is independent of and retarded by them. Radiation takes place in straight lines from the surface of a body. Different kinds of surfaces radiate differently, and their power depends only their compactness, and not on their color, thus proving the fallacy of Leslie's experiment, who took a tin box, one side of which was smooth, and radiated least, an other being scratched radiated more, a third covered with paper, more still, and a fourth covered with lampblack, most of all. He thought the black colour was the cause of this powerful=

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=radiation, but Melloni has since proved that this depended upon the texture of the surface entirely. It is for this that stoves are made rough and loose in texture so as to radiate better. Caloric escapes from bodies by radiation, and this is impeded by intervening matter. Even air retards it slightly, and in a vacuum, it is unobstructed. In the case of conduction and convection, intervening matter is necessary. Heat when radiated is capable of reflection just as the rays of light. Place a hot ball before a mirror, and the heat will be reflected, and by a proper construction, the rays may be again collected, in another spot; so as to ignite a combustible.

For this purpose we must have two mirrors, highly polished and concave. The iron ball is placed in the focus of one, and the combustible in the focus of the other. The mirrors are so adjusted opposite to each other, that all the rays falling from the ball on one are reflected to the other in parallel lines; the rays are again reflected to one point which is the focus of the 2nd mirror.

When rays of heat fall upon any body, the are absorbed, transmitted, or reflected. The power of reflection depend on the density of the surface of a body and not its color. Therefore a good reflector is a bad absorber or radiator, and vice versa. To heat a vessel of water quickly, the vessel should be rough and smutty, and to retain the heat the vessel should

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be smooth and polished. Absorption and radiation are similar in this respect and both differ from reflection. It has been proved by Dr Franklin's experiments, that heat is of two kinds. Solar and Terrestrial Heat. Solar heat is always accompanied by rays of light; but terrestrial heat is accompanied by very little or no light. They differ in their properties; for the darker a body, the more it absorbs solar heat, while the property of absorbing terrestrial heat is dependent of color.

Dr. Franklin placed square pieces of cloth upon the snow in the sun, and after a while he found the darker pieces sunk deepest in the snow, thus proving that having absorbed more heat, more snow was melted. Had it have been dark heat, it would have been vice versa

The reason of this is that the darker the color, the more rays of solar light it absorbs, and as these are inseparable from those of heat the heat is likewise absorbed. If heat is neither absorbed nor reflected, it is transmitted like those of light. This property of transmission is called "Transcalency" and corresponds to "Transparancy" with the regards to the rays of light.

Bodies which transmit heat are called "Diathermanous" or "Transcalent.

Glass intercepts dark heat, but not solar heat, because as light penetrates the glass, the heat accompanies it. I will write a list of some the substances below through which heat is transmitted.

	Oil Rays	Cold Platinum	Copper at 132°	Copper at 212°
Rock salt,	92	92	92	92
Plate glass	39	24	6	0
Gypsum	14	5	0	0
Alum	9	2	0	0

Transmission of 100 rays of heat from

Several theories concerning dew have existed.

First that dew is an exhalation from the earth. If now a board be placed horizontally about a foot from the ground, the dew should be found on the under surface of the board, but this is not the case, therefore this theory is false.

The second is that dew falls like a mist. If now you take a square foot of wood and one of iron, the deposit should be equal on both but this is not the case, therefore this theory is false.

Thirdly, that it is a deposit from the stratum of air in contact with the surface, therefore this theory is true, the other two being false.

Dew is the deposit of moisture on a clear night.

It is only necessary for its formation that the surface should be cooled below the temperature of the air in contact. The quantity of dew depends on the texture of the surface on which it is deposited, and on the power of radiation.

The atmosphere above is cool, and serves as a reservoir for the heat radiated from the earth. A wooden surface receives less dew than an iron one, because the latter radiates best, is cooled faster, and therefore condenses more moisture. Air always contains moisture, for it is the moisture of the air which is condensed on a cup of ice-water. There is a greater deposit of dew in calm than in windy weather, because a film of air rests upon the surface of the earth in the first case, - see page

= and is cooled, and in the latter no film remains fixed long enough to admit of cooling. The dew is more abundant in a clear night. When there are no clouds, the air above acts as a reservoir drinking up the heat but when it is cloudy, there is, as it were a screen, which causes heat to be given off slowly, but the clouds acting also as a mirror, reflects back to the earth, the heat it has moved. The higher the temperature of the air the more moisture it is capable of holding. There is a point down to which you may cool the air, when it will just be able to hold its moisture, and if cooled more than this, it will deposit its moisture; this is called the dew-point.

To determine the dew-point of the air in a room, note the temperature of the air, and then taking a vessel of water, find at what temperature you must cool this water so as to cause moisture to be condensed on the vessel. This latter temperature is the dew-point.

There are two theories of radiation, the latter of which is now approved. First, that when a hot body and a cold one are near each other, the hotter one is the only one which radiates heat, secondly, that all matter whether equal in temperature or not, they radiate in proportion to their temperatures.

"Vapor of water exists in the atmosphere at all times, and in all situations and thus plays a most important part in the economy of nature.

The proportion of aqueous vapor present in the air is subject to great variation, and it often becomes exceedingly important to determine its quantity. This is easily done by the aid of the foregoing principles. If the aqueous vapor be in its condition of greatest possible density for the temperature, or, as it is frequently but most incorrectly expressed, the air be saturated with vapor of water, the slightest reduction of temperature will cause the deposition of a portion in the liquid form. If, on the contrary, as is almost always in reality the case, the vapor of water be below its state of maximum density, that is, in an expanded condition, it is clear that a considerable fall of temperature may occur before liquefaction commences. The degree at which this take-

next page

=place is called the dewpoint, and is determined with great facility by a very simple method. A tube then tin plate or silver, well polished, is filled with water at the temperature of the air, and a delicate thermometer inserted. The water is then cooled by dropping in fragments of ice, or dissolving in it powdered sal-ammoniac, until a deposition of moisture begins to make its appearance on the outside, dimming the bright metallic surface. The temperature of dew-point is then read off upon the thermometer, and compared with that of the air!! (Towner's) The dew point, is variable, depending on the quantity of moisture in the air. Thus if a room whose temperature is 65° you have to cool the air 8° to make it deposit ~~xxx~~ moisture, in this case 57° is dew-point. In determining the temperature= next page

of a body, nor enable [illegible] find the actual quantity of heat the body contains. For a thermometer will stand at the same height in a large as in a small body of water, though it is evident that there is much more heat in the larger than in the smaller vessel, since the former in cooling one degree, gives off much more heat than the latter. Therefore, the actual quantity in such a case, is proportional to the bulk. If you heat one pound block of iron and one pound block of lead equally, their apparent temperature will be about the same. Let them cool a short while and the iron will be found to have cooled one fourth as much as the lead. If you plunge the two balls into equal bottles of water, the iron will heat the water = next page

four times as much as the lead. This proves evidently that in heating the two, the iron has absorbed four times as much caloric as the lead. The thermometers gives us the relative temperature and not the actual amount of heat.

To raise different substances to equal temperatures requires different amounts of heat. Thus it requires thirty times as much heat to heat water, as it does to heat mercury. This is what is called specific heat. Each body has its own specific heat, and requires its own specific heat, to raise it to a given temperature.

Some bodies, when heat is applied to them have the property of storing it away, and retaining it in an insensible form; these are said to have a capacity for heat.

Iron requires for times as much heat as lead to raise it to a given temperature, and is said to have four times as much specific Heat, or four times as large a capacity for heat. It contains in it, though in an insensible form, four times as much heat.

If you take one pound of water whose temperature is 152° and one pound of water at a 100°, and mixed them, the mixture will be found to take the mean temperature of the two, or 131°.

If you take one pound of water 152°, and one pound of mercury at a 100°, and mix them, the mixture will stand at a 153°, the mercury gaining 60° and the water losing 2°. We have the quantity of heat capable of heating water 2°, sufficient to heat mercury 60°. Therefore water has thirty times the capacity of mercury.

Take mercury at 162° and water at 100° the mixture will stand at 102. The mercury losing 60° and the water gaining 2°.

In studying the capacities of bodies for heat we do not refer to any changes produced in the form of those bodies by heat.

To find the proportional specific heat of any different bodies mix them as spoken of on another page of water and mercury, and note how much one loses, and the other gains. Another way is to take a spiral tube coiled up in a box full of ice and, putting the substances in the tube, note the different quantities of ice melted by the different substances. Or again heating the bodies up to the same temperature, note their respective times of cooling which are proportional to [illegible]

their Specific-Heat. or you may note how much water each will heat to a given temperature.

If you take a dense body and rarefy it, its capacity for heat will be found to be increased.

This may be explained thus. Between the particles of bodies are interstices, through which the heat may be supposed to penetrate, and which acts as reservoirs for heat. When the body is rarefied, the particles are farther separated, and the reservoirs are enlarged, thus enabling the body to take up more heat.

This explains the cause of such coldness in the upper part of the atmosphere. The air there being much more rare, has a greater capacity for heat than the lower air,

And therefore, the heat from the sun is thus drunk up, and remains as insensible heat.

The determination of the specific heat of different substances has occupied the attention of many experimenters, and only here (Dulong and Petit, and recently M. Regnault) [illegible] tion. It appears that each solid and liquid has its own specific heat; and it is probable that this, instead of being a constant quantity, varies with the temperature. Very little is known respecting the specific heat of gases; the investigation being attended with the greatest difficulties; one thing, however, is clear, namely, that the specific heat varies with the state of condensation, being greater in proportion to the rarefaction of the gas. Thus, when air is [illegible] of temperature results

And when air is compressed, heat is evolved, which may then raise the temperature of ignition; syringes by which tinder is kindled are constructed on this principle. In the upper regions of the atmosphere the cold is intense, snow covers the highest mountain-tops even within the tropics, and this is due to the increased capacity for heat of the expanded air. MM. Dulong and Petit observed in the course of their investigation a most remarkable circumstance. If the specific heats of bodies be compared upon equal weights numbers are obtained, all different, and exhibiting no relations when taken among themselves, but if, instead of equal weights, quantities be taken in the proportion of the chemical equivalents an almost perfect coincidence in the numbers will be observed, showing that some exceedingly intimate connection- next page

most [illegible] [illegible] The relations [illegible]
as to heat and their chemical nature;
and when this circumstance is taken into view
that relations of even a still closer kind
link together chemical and thermal
phenomena, it is not too much to ex-
pect that ere long some law will be
discovered, far more general than any
with which we are yet acquainted." This
[illegible] which brings us [illegible]
the action of heat.

Take one pound of water at 172° & one
pound of water at 32° and mix them.
The mixture will have the mean tem-
perature 102°. Now take one pound of
water at 172°, and one pound of ice
at 32° and mix them. The resulting
temperature will also be 32°. 140°
of heat have disappeared, this quan-
tity being necessary to liquefy the
ice. This is called heat of liquefaction. next page

or Latent Heat. When a solid body is liquefied, it requires heat, which must come from some other body and which becomes latent in the liquefied body. Some bodies, as iron, in melting take up an enormous amount of heat, which becomes latent, besides that which remains sensible.

When a solid body changes to a liquid, a liquid to a vapor, or in short, a more dense to a less dense body, there is a change of temperature, and a disappearance of heat which becomes latent. If we dissolve salt in water, the solid is liquefied, and this process requiring heat this heat is taken from the surrounding water, and the temperature of the solution is lower. Thus snow and salt and salt are used as a freezing mixture;

for [illegible] being [illegible] solids to liquefy, so much more heat is taken from the surrounding objects. This mixture gives a temperature of 5° or 37° below the freezing point of [illegible].

A mixture of snow and muriate of lime, gives a temperature of -50° or 10° below the freezing point of mercury.

Liquids are capable of volatilization, thus passing from a dense to a more rare state. If you bathe your body in ether or alcohol, you have a sensation of cockness, which is owing to the liquids in volatilizing, taking away the heat of the body. If you use a fan in hot air, you feel cool, although it is still the same hot air, which is in contact with your face. This is because when you are warm your skin is covered with moisture, which is caused to evaporate = next page

By pressing a sponge full of cold water the surface in evaporating, deprives the skin of a part of its heat.

If you condense vapour, an immense quantity of heat will be given off. Take a box containing 1000 grains of water, at the temperature of 50°. In this box, place a spiral tube (as in figure xxv) connected with a retort, in which you put 1 grain of water, and then boil it till it has all changed to steam; the steam passes along the tube, gives its heat to the 1000 grains of water, and is condensed; you then find the temperature of water to be 51°, or the 1 grain of steam was sufficient to heat 1000 grains of water 1°, and must therefore contain 1000° of latent heat, but it has also 212° of sensible heat. Therefore 1000+212° = 1212° is the quantity of heat contained by steam.

and this will be found to be the measure of the heat of steam at any temperature. Thus take steam whose sensible heat is 200°, and its Latent Heat will be found 1012° 1012 + 200 = 1212°. Every liquid passing to a solid state, evolves heat.

Suppose I have a body of water over which a north winds has blown, which has then become perfectly smooth and quiet, this water may be found to have cooled down to 28° and still be liquid; but the least agitation will immediately cause it to solidify. Stir it up with a hermometer, it instantly changes to ice, and the hermometer will be found to have risen considerably. Thus showing that the water had evolved heat.

A snow storm is followed by warmer weather, because the moisture from the clouds being changed to ice, much heat is evolved.

Any gas, by being becoming dense, gives off heat.

The boiling point of a liquid, is that point at which when heated, is passed into vapor, at the same time, being violently agitated. This point is different for different liquids, and varies even for the same liquids, under different circumstances.

As we ascend above the surface of the earth, the atmosphere becomes more and more rare.

It presses upon the surface of the earth, with a force equal to 15 lbs per square inch. If you rise $2\frac{7}{10}$, the pressure is $\frac{1}{2}$ of 15 lbs. Each additional $2\frac{7}{10}$ miles up

miles higher, is 10°, of 18th, and so on.
But the higher atmosphere having
less density, has more specific
heat, and a greater capacity for
it than the lower.
Consequently the heat of the sun, instead
of remaining sensible, as in the lower
part of the atmosphere, is absorbed
and becomes latent. For this reason
the air above becomes colder, the
higher we rise.
It is found that for every [illegible] feet we
rise, the temperature diminishes 1°.
This causes what is called the line
of "Perpetual Congelation,"
There is a point on the earth's sur-
face not far from each pole where
water is constantly frozen; if
now you go towards the
equator you find that on the sur-
face of the earth, this is not the case,-

but on rising a short distance above the surface, we again find the point of perpetual congelation, and the farther we recede from the poles, the higher is this point, until it reaches its maximum height at the equator. At the equator its height is 15000 ft. and is [illegible]. The average temperature of the equator is [illegible]° above freezing, and as we rise 352 feet to lower the temperature 1° we must rise fifty times 352, to diminish it 50°.

Vaporization depends upon the capability of a body to change its forms.

Substances are either volatile or fixed. Fixed substances are those which it has been found impossible to change into vapor.

Ebullition and Evaporation; the first is the escape of vapor accompanied by a violent agitation, which is owing to the vapor rising from the bottom; this is called boiling. The second, evaporation consist in the escape of vapor from the surface of a liquid and goes on at all temperatures.

The boiling point of a liquid is, as said before, influences by circumstances. Thus in a glass vessel, water boils at 214° and in a metal vessel at 212°. This is because the steam formed in the glass vessel, adhere to the bottom and requires an addition of heat to increase its elasticity and enable it to rise. If you roughen the bottom of the vessel, or put a few grains of sand in it,

the water boils at 212°. Because the sand heat up the bubbles and preventing cohesion, enables it to rise without addition of heat.
The depth of the column of liquid also influences the boiling point, because the water pressing upon the steam renders it denser and less elastic, and it therefore rises with less facility. Thus if you boil water, and then increase the pressure upon the water, you stop the boiling, remove the pressure and it boils again. This gives rise to the "Culinary Paradox." The boiling point is also influenced by the pressure of the atmosphere. The air presses downwards at the surface of the earth, with an average force of 15 lbs. to the square inch. And when this=

pressure varies, the boiling point also varies. Thus it is found that in a vacuum where there is no pressure at all, the boiling point of all liquids are lowered 140°. Thus in air - Water boils at 212° - but in a vacuum at 212° - 140 = 72 - alcohol boils at 172°, but in a vacuum at 172° - 140° = 32, - where water freezes. Ether boils at 96° - but in a vacuum at 96° - 140 = 40°, where mercury freezes. Hence the "Culinary Paradox", stop the mouth of a flask of boiling water, and in removing the heat, it ceases to boil; now apply to the flask, cold water, and it begins to boil again, but if you apply hot water, it again ceases to boil. Thus is this explained; when you remove the heat, the vessel is full of steam, and when you apply cold-

water, this is condensed, and a partial vacuum is formed; owing to this vacuum, the water being still warm, again boils; but on applying cold water, steam is again formed, which pressing on the water, causes the boiling to cease.

When ever we mention 212°, as the boiling point of water, we mean the temperature at which it boils, at a stated level, as that of the sea, for the higher you rise above this, the less is the pressure of the air, and the lower the boiling point. It is found that the temperature at which water boils lower, is 1° for every 548 feet you ascend. On this principle, a thermometer, called the boiling point, or Barometric Thermometer, as a substitute for the

Barometer. It consist of a tin case to hold, water, ~~water~~ mercury which is placed a lamp. over this case, in the steam of the water is placed a Thermometer, with a very fine tube, and large bulb, so that the degrees ..... be marked off longer, and thus the minutest variations of temperature be noted. now when you boil the water at different heights, and multiply the number of degrees difference between the two boiling, points by 500 feet, you have the difference between the elevations.

Evaporation is a quiet, invisible, but rapid escape of vapor from the surface of water, and depends first, upon the size of the mass for the same quantity of water, evaporates faster in a wide saucer,

than in a narrow tube. -

Secondly, upon the pressure on the surface, if you diminish the pressure of 15 lbs, the vapor, is more rapid. Place a vessel of water in the receiver of an air pump, and exhaust the air, contained in the pump; the evaporation commences, and if you have present, some oil of vitriol, which absorbs the moisture, the evaporation continues rapidly, and as the steam is forming, takes heat from the water, this water will eventually be frozen.

Thirdly upon the stillness of the air - when the air is still, that in contact becomes saturated, and evaporation ceases, but in a wind, the stratum in contact is changed, and

most moisture is taken up. Thus, ascent however cold it be will dry up the earth, even if covered with ice.

Fourthly, upon the dryness of the air; for if the air is saturated it can take up no moisture, and evaporation ceases.

T. H. Dunn.

A Dissertation

On Cancer of the Stomach

Submitted to the examination

of the

Provost Regents and

Faculty of Physic

of the

University of Maryland

For the degree

of

Doctor of Medicine

By

Ellanah Kerlaney Washington Cooper

of

Baltimore

Maryland

1851

Gentlemen

In accordance with a long established rule of the University of Maryland making it obligatory that each candidate for graduation shall produce a thesis for the consideration of your honorable body I offer the following imperfect remarks on Cancer of the Stomach. Should our learned faculty detect imperfections in the following pages (which I have no doubt they will) I hope they will view them sparingly — as your obt. servt. is still a learner —

Cancer of the Stomach

Under this head are included those skin-rhoids encephaloid and ulceration affections of the Stomach which in all their stages and under every variety of treatment have a fatal tendency. There is little doubt that the mere results of chronic inflammation of the Stomach neglected or mal-treated have often been mistaken for cancer of that organ. I do assume however and the belief is general that genuine Scirrhus and genuine Medullary fungus may attack the Stomach as well as other organs and that wherever they occur, they are entirely distinct from common inflammation and constitute

diseases which are in a very slight degree amenable to treatment having an inevitable tendency to a fatal termination.

Symptoms and Diagnosis. Carcinoma of the stomach has sometimes no symptoms at all or none which the most sagacious practitioner would refer to the organ affected. When however symptoms of gastric disorder do exist they are so nearly analagous to those of chronic inflammation that it is often impossible to distinguish the two complaints during life. It is unnecessary therefore to notice any other of the symptoms than those to which some value has been attached in reference to diagnosis. The pain which is almost always

experienced in a greater or less degree and is sometimes excruciating varies very much in its character. Lancinating pains, though very common in cancer of the Stomach can not of themselves be looked upon as diagnostic of that disease since the fact has been well ascertained that such pains occur occasionally in chronic gastritis, and are sometimes absent in cancer of the Stomach.

Vomiting though a very common and distressing symptom is sometimes absent and in many cases is unfrequent at the commencement. At first, the patient discharges his food or a glairy mucus, afterwards

together with sour bitter or rancid glucose and finally not unfrequently blood, or a black matter which has been compared to coffee grounds. This black matter which has been looked upon as characteristic of Cancer occurs both in Cancer and chronic gastritis But though not a certain sign, the character of the vomiting affords in forming a precise diagnosis, and indicates the seat of the disease. Thus when the food is rejected after it has been swallowed, and before it has entered the stomach or when it enters the stomach and in retained it quickly recasions excessive nausea and the discharge of a glairy

In case there is reason to suppose that the seat of the disease is at the cardiac orifice. If the stomach rejects almost every thing which it receives, after having retained it for some time, the probability is that the disease is at the pylorus causing that orifice to resist the passage of the chyme. When the patient has been vomiting frequently for some time, but ceasing to be troubled in that way is seized with a severe and exhausting diarrhoea it may be supposed that the mucous membrane of the pylorus has been eaten away by ulceration, and thus opened a larger passage.

Generally speaking, when the mucous coat has become disorganized, there is left vomiting, as the sensibilities through which this action is excited reside chiefly in that membrane.

The bowels are generally obstinately constipated through diarrhoea sometimes supervenes towards the close.

The cachectic countenance of cancerous patients is said to be one of the most characteristic symptoms. The complexion is of a peculiar yellowish white, or lemon tint, which is not often met with in other diseases.

The presence of a tumor in the epigastrium is the most certain of all the diagnostic symptoms. This tumor makes its appearance at various periods in the progress of the disease, and is more or less obvious in proportion to the emaciation of the patient. It is said to be most readily perceived when it is at the pylorus or great curvature of the stomach.

We may however have tumors in the vicinity of the stomach, from enlargement of absorbent glands in that region, and other tumors in the same neighbour-

hard may be mistaken for
carcinoma. The diseased heart
of the pancreas may be
mistaken for a thickened
pylorus. But when the tumor
is associated with the
other symptoms above men-
tioned we may reasonably
infer that it is of a can-
cerous character.
The progress and duration
of cancer of the Stomach
are very variable, some-
times running its course
in a few months and
sometimes continuing for
many years. It is a pe-
culiar feature in these ma-
lignant diseases of the Stom-
ach, that the symptoms some-

times remit in so remarkable a degree as to excite hopes both in the patient and his medical attendant that the nature of the malady had been mistaken and that recovery is about to take place. But this state of things does not last long as the symptoms return again perhaps with increased severity. Death is usually preceded by great emaciation and a long and tedious period of diversified suffering. It is sometimes hastened by ulcerations perforating the coats of the stomach and producing peritoneal inflammation.

Anatomical Characters. The stom-

coat is sometimes very much
contracted on itself and its
coats very much thickened,
when however the pylorus is the
seat of the disease it may
be greatly enlarged. The interior
of the part is usually covered
with a brown mucus. The
Cancerous disease is most
frequent at the pylorus next
in frequency is the Cardiac
orifice, though it may oc-
cupy any part, or in fact
the whole Stomach, and may
extend beyond the orifices into
the duodenum or oesophagus.
The peritoneal coat is often
free from disease being
much less liable to be affect-
ed than the other coats,

sometimes the disease is confined to the mucous membrane, it may however implicate the submucous cellular tissue the muscular coat or any of the intervening cellular coats. In a more advanced state of the disease, ulcers are found with hard elevated and reverted edges, and surface irregular with fungoid excrescences and often exhibiting the openings of blood vessels of considerable size. They are found in different stages of their progress, showing a disposition to extend both in breadth and depth and not unfrequently perforating the coats of the stomach. When the coats are

perforated the peritoneal coat is frequently found to have contracted adhesions with some neighbouring organ and the disease penetrating such organ forms the basis of the cancerous ulcer.

Causes— It is notable that cancer of the Stomach arises from the same causes that give rise to cancer elsewhere. What these causes are we do not know. But we are content with ascribing the result to a peculiar diathesis, the origin of which we know nothing. It is highly probable that whatever irritates or inflames the Stomach may call this predisposition into action, such for in-

stance as the abuse of alcoholic liquors, excess in eating and the injudicious use of tonic and stimulant medicines. The depressing emotions are thought to favor its production and Napoleon on the Island of St. Helena has been cited as an example. The disease seldom occurs before the twenty fifth year of age. Is most common in middle life, though it not unfrequently occurs in the old. It is said that males are more subject to it than females.

Treatment. There is no curative treatment in this disease. We do not presume to go further,

than to palliate symptoms, and for this purpose in the first place the strictest attention to the diet of the patient. As a general rule no stronger drink should be allowed than water, and spices and other condiments should be avoided. The food may consist of milk which if it agree with the patient is one of the best articles of diet. The farinaceous substances, boiled meats, broth eggs &c. are proper, always taking care not to stimulate the stomach by the quantity or quality of the food. The bowels should be kept open by enemata or by the mildest laxatives. Acidity may be corrected by the bicarbonate of

soda or potassa or by lime water with milk as food. A few leeches may be applied occasionally to the epigastrium and revulsion towards the same place by rubefacients or epispastics. To relieve the pain or local distress, to quiet irritation, and promote sleep it is necessary to resort to anodynes. These are to be varied to suit the case. The principal articles, which have been recommended are Prussic acid, the various preparations of opium. (The salts of morphia, or the black drop, are probably the best of these for the purpose.) Indian Hemp, Belladonna, Hyosciamus, The extract of Hemlock and Lactucarium. Anodyne applications to the epigastrium are sometimes useful

and it will be proper sometimes to
administer opium or laudanum
by enema. Particular symptoms
from time to time require particular
treatment, always bearing
the fact in mind that it
is best not to do too much.

AN

INAUGURAL DISSERTATION

ON

OPIUM.

SUBMITTED TO THE EXAMINATION

OF THE

PROVOST, KEGENT,

AND

FACULTY OF PHYSIC,

OF THE

UNIVERSITY OF MARYLAND,

FOR THE DEGREE OF

DOCTOR OF MEDICINE,

BY

RICHARD ESKRIDGE SUTTON,

OF

MARYLAND.

1851.

To

Prof. Samuel Cheever M.D

As a token of respect for

his attainments

which have placed him in the highest ranks

of his profession

The following pages,

Are respectfully inscribed

By his friend and pupil

The Author

Gentlemen of the faculty:— A long established custom of this institution has made it obligatory upon each Candidate for graduation to produce an essay upon some subject pertaining to medical science. In accordance with that custom I have prepared for your inspection the following imperfect remarks upon a highly important subject. It is then not the faculty require, that each thesis shall be wholly an original production of the Candidate by whom it is offered, I know not, But being fully persuaded that the faculty are well acquainted with the amount of the personal practical experience of the majority of their graduates. I trust it will not be asking too much when I request them not to be surprised, if they meet with many familiar passages in the following pages upon the subject upon which I have chosen as

The foundation of my remarks is

Opium.

As the historical and commercial histories of this drug, are subjects with which the Pharmaceutist is more nearly concerned than the physician I shall not consume time in reviewing them, but pass at once to the consideration of this agent in a medical point of view. This doubtless is one of the most important articles of the materia Medica. And is one which has enjoyed the almost unlimited confidence both of the physician and surgeon from the earliest date of medical knowledge. And when we consider the many and varied therapeutical indications it is capable of fulfilling it appears justly to deserve its high reputation, whether it be to soothe nervous irritability - to allay pain - to prevent pain, or to calm the system generally, and thus produce sleep; whether it be to relieve the

sedatives generally, or to increase the action of the excitants, it has often realized the most sanguine expectation of the practitioner.

Before proceeding to relate its effects upon the system, it may be well briefly to mention some of the most important principles it has been found to yield on analysis. Opium on analysis has been found to be composed of numerous constituents, the most important of which are Morphia, Codeia and Narcotina. Morphia is a colorless inodorous alkaline substance consisting of small Crystals insoluble in Cold water, sparingly soluble in Boiling water. but readily dissolved by boiling alcohol. it very readily dissolves in dilute acids neutralizing them and forming salts. Morphia is seldom prescribed but is generally given in the form of some of its salts. It is capable of fulfilling the same indications as opium in very much smaller doses and does not leave

the disagreeable symptoms after its use which so frequently follow the administration of Opium in substance.

Codeia, is a white crystaline solid. Soluble in water alcohol and ether. with the dilute acids this substance also forms salts. The experience of different observers of the effects of Codeia on the animal economy has varied exceedingly. Magendie says it produces sleep, and in large doses stupor Ando thinks one grain equal to half a grain of morphia, But it is evidently much inferior to morphia and bears to it about the same relation that Cinchonia does to quinia. It is an agent very rarely used however as all its good effects may be obtained by the use of Opium with much greater certainty and promptness.

Narcotina. the other of these constituents is also a white crystaline substance-inodorous and tasteless, insoluble in water, soluble

in Aether. boiling alcohol and dilute acids it does not appear to exert either a stimulant or sedative impression upon the system. Indeed it appears to be nearly inert. It is said by some, to be fully as good as the Sulph. Quinia in intermittent fever, when Combined with Sulphuric Acid. It is a remedy however from which little good may be expected where quinia has failed.

Of these three Constituents the first only is of much importance. Having thus briefly reviewed these most important Constituents of Opium. I shall proceed to the consideration of its effects upon the system in medical doses. Opium, is a stimulant narcotic. When taken by a healthy person in medical doses, it sensibly augments the vital powers, The pulse is soon increased in frequency fullness rapidity and strength, the temperature of the skin is sensibly augmented, the face becomes flushed. The senses are quickened

, the spirits animated, and the intellectual
functions act with increased energy. But while
thus exciting the general system, its action
is directed with such peculiar energy and
force to the brain. And a state analo-
-gous to intoxication is produced. But
this period of excitation subsiding is succeeded
by tranquility and calmness of the intellectual
and corporeal functions, the mind is relieved
of care and anxiety, sensibility is obtunded
and the individual sinks into a pleasing
state of listless indifference. At a period
varying from half an hour to an hour from
the time of the exhibition of the narcotic, all
sensibility to external objects and impressions
is lost in profound sleep. In the space of
eight or ten hours the hypnotic effect passes
off, and is succeeded by more or less nausea,
headache, tremors, or other symptoms of dis-
-ordered nervous action. These unpleasant
symptoms however are soon overcome by

the Recuperative energies of the system. And no injurious effect is experienced, unless the dose be too often repeated, when the Vital powers become diminished or worn out by long continued, over excitation.

Such then are the sensible effects of Opium in moderate doses. It at first stimulates then energizes the energies of the nervous and vascular systems, thereby stimulating and increasing the whole economy. - Impairs sensibility - mitigates pain, diminishes all the secretions, except that from the skin and checks the peristaltic action of the bowels to some considerable degree. And these effects are all very important, in a therapeutical point of view. In large doses the period of stimulation and excitement is much shorter, the sedative and Soporific effects come on much sooner, last much longer, and the succeeding symptoms of debility are much more intense. Unlike stimulants & the

sedative impression is by no means propor-
-tioned to the preceeding state of stimulation
If the dose be still augmented its narcotic
effects become more evident, the vital powers
are scarcely at all excited the pulse becomes
quick and frequent though it does not much
effect their force. A species of drunkenness en-
-sues, the mind is unsettled and incoherent,
the pupil of the eye greatly contracted, the eyes
suffused, countenance dark, the sleep becomes
more and more profound, and now if the
individual be awakened by any violent agitation
he speaks incoherently and unconnectedly, and
soon sinks back into his former lethargic
condition, respiration is stertorous - the pulse
now becomes full slow and labouring, and
thus at the period of eight or ten hours after
the exhibition of a poisonous quantity of
spirits, the patient will be found with a cold
and clammy skin - cold extremities, pallid
countenance, feeble thread like scarcely percep-

-tible pulse. respiration slow sighing and inter-
-rupted, and a state of torpor but little
short of death like insensibility, death
by asphyxia soon winds up scene unless
relief be afforded. When the brain is much
affected the pupil is very much contracted
and the bile though still secreted by the
liver is not poured out into the alimentary
canal, It has been mentioned that Opium
by controling the peristaltic action of the
bowels prevents purgeing. But it is a
fact worthy of notice, that the protracted
and long continued use of it not unfre-
-quently produces diarrhea.
The Modus Operandi of so important an
agent as Opium has necessarily been the
subject of much angry dispute and heated
controversy. The Opinion of the profession
however at the present day is that Opium
produces its effects in two ways. First
partly without being absorbed. But

Secondly that by being absorbed

First then that Opium produces its effects partly without being absorbed is evident from its immediate effects upon the part to which it is applied. As in the experiment of Dr. Wilson Philips - who found that when Opium was applied to the mucous coat of the intestines of rabbits, the muscular contractions of the gut were immediately paralyzed without the general system being affected for sometime after. This effect then must have been produced by the direct action of the agent upon the sentient extremities of the nerves of the intestinal mucous membrane. Secondly that Opium acts by being absorbed into the circulating system and thus chiefly produces its effects is ~~man~~-~~ifest~~ apparent from several interesting circumstances connected with the manifestation of its influence upon the whole animal economy. First the time that supervenes between

between the administration of a dose of Opium and the appearance of its effects upon the system, a time evidently sufficient for its absorption - Secondly the augmentation of its effects for eight or ten succeeding hours now it is evident that the narcotic is as much in contact with the nerves at the beginning of the 1st hour as it is at the end of the seventh and yet at this time we find the intensity of its effects gradually increasing. Thirdly - The rapid and powerful effects produced by injecting it into the veins. Fourthly the effects of Opium are almost strictly proportioned to the absorbing power of the tissue to which ~~they~~ it is applied. And Finally its appearance in some of the secretions - more especially in that of the mammary glands, as we know the fatal narcotisation of the infant from a dose of Opium administered to the Mother is an accident of no very unfrequent occurrence - its appearances are revealed after death, by post mortem

examinations held on the bodies of those who have died from the effects of a poisonous dose of Opium, at all conclusive as to its mode of operation. The redness of the mucous coat of the stomach occasionaly found is not always present, And when present may be referable rather to the irritating substances given as remedies than to the direct action of the opium itself. The force of its action is directed with peculiar energy and force to the brain, and death is caused by paralysis of the muscles of respiration, It must therefore be apparent, that the active principle of this medicine is absorbed into the circulating system and conveyed through it to the brain and nervous centres, and acts upon them by immediate contact with their interior structure

And for this reason (says Drs Wood & Bache) it is an error to attribute the anodyne sedative and soporific effects of the medicine to the state of previous excitement, They are so much as this

very excitement the anict results of its action on the brain. The action of Opium is materially modified by idiosyncrasy. Thus in some persons we have its effect manifesting itself not until twelve or twenty four hours after its administration. In other cases we have it producing effects directly contrary to those usually produced upon the constitution unaffected by the influence of a peculiar idiosyncrasy as fever quick pulse. Delerium exausia vomiting and sometimes watchfullness. These ill effects however may frequently be obviated by giving some of the preparations of Opium, or Opium itself dissolved in lemon juice. But there are some rare cases in which this agent can not be given in any form without producing these unpleasent consequences.

Again in regard to the susceptibility of different persons to the action of Opium there is very great diversity. Some are peculiarly susceptible to its influence whilst others

will take a very much larger quantity, under the same circumstances, without experiencing scarcely any of that peculiar array of symptoms resemble to its action. It is essentialy necessary to bear in mind, that the younger the patient the more easily is he brought under its influence, The intensity of its action varies according to the part to which it is applied. Thus we have its action upon the system promptly manifested by taking it moderate dose into the stomach, whereas to produce the same effect by the rectum it is necessary to throw up a quantity three times as great; But it is in disease chiefly, that we witness the most anomalous resistance, to the action of opium It seldom or never happens the patient is rendered more insensible to its action, but in a very large class of diseases the quantity required to bring the system under its influence, is often enormous, As in Tetanus, Hydrophobia &c. And

even when the erethism of the nervous system is overcome in these cases. No symptoms may exist, indicating that a narcotic has been taken. The therapeutical applications of Opium are numerous and diversified. in consequence of the many and important ~~ap~~ indications it is capable of fulfilling

In the Class of Fevers it is frequently used occasionaly as a stimulant but far more frequently as a sedative. It should therefore be born in mind, that it may be given so as to stimulate, or promptly depress the vital powers, and the dose should be adapted to the indication to be fulfilled. If it be desirable to stimulate it should be given in small and frequently repeated doses if to depress the vital powers it should be given in one, full, large, dose. In intermittent fever it has been administered in the various stages frequently with decided advantage. There are two conditions in intermittent fever in

which it is often administered with marked advantage. The first is in those cases in which venesection is not required in the hot stage, and where there is much pain over the abdomen. But as a general rule it should not be given in the hot stage. The second, is where we are called to see a patient just before the paroxysm a return of which might be fatal, and where it is too late to prevent its return by giving the salts of quinia. In continued fever it is often highly useful. As a general rule it should never be given in these diseases when the temperature is above the natural standard, the tongue brown and dry, the conjunctiva injected &c In the later stages however symptoms may come on which will render its employment necessary as watchfulness, subsultus tendinum and inability to sleep. In the delirium of typhoid fever not dependent upon determination of blood to the brain it is the best remedy. And when in the course of this disease we

ascertain that the intestines are perforated from the ulceration of Peyer's and Brunner's glands, it is the only remedy upon which we may rely with any hope for the patient's safety. And should be given in large doses to check the peristaltic motion of the intestines and thus prevent the escape of foecal matters into the cavity of abdomen.

In inflammatory diseases, it is never given with advantage in the active stage. But on the contrary when the arterial excitement has been calmed by proper antiphlogistic means, it may in most cases be given, with advantage in free doses combined with Calomel and Tart. Antim. Opium should never be given while there is high febrile action or where there is any determination of blood to the brain. It should be administered only very early in the disease before it has amounted to active inflammation, or after the active stage has been subdued by the

Antiphlogistic treatment. In pneumonia after the pain and dyspnea, and the general inflammatory excitement have been subdued by the use of Antiphlogistics &c may be administered with the most decided advantage in combination with Calomel and Tart. Antim. In inflammation of the bronchial mucous membrane it may be employed much more freely than in most inflammatory diseases. In this however its effects should be confined to two periods, the onset and the decline. Neither this nor any other stimulant should be given when the disease is fully established. And when given it should generally be combined with Opium or Antimonials, Like all other remedies it is not a curative influence against that scourge of the human race Phthisis, but it carries the patients passage to the grave and thereby accomplishes one of the chief duties of the profession, the alleviation of suffering. There is however one caution to

be observed in the employment of Anium in Phthisis. It should never be given at night lest the patient be kept too long awake by its stimulant effects. The best time to give it is early in the morning. In inflammatory diseases of the skin it is frequently a good local application, and is perfectly safe. In combination with a solution of Acet Plumbi it is one of the best local applications in Erysipelas. When combined with Acet Plumbi it is a useful remedy in many cases, But it is in Hemmorrhages - Dysenteries and Diarrhea's, that it is most frequently used thus combined

In Pertussis there are two important indications to be fulfilled. the ist to suddue inflammation the second to remove irratation, to fulfill the ist we use antiphlogistic means. and for the accomplishment of the second Anium is the principle agent; In nervous diseases it is highly useful when the morbid condition of the nervous system does not depend upon inflam=

mation, But if the use of more ... [illegible] which
continue for a long time it is necessary to vary
the agent [illegible] lest the patient acquire
a fondness for it, which (if he should recover)
would be infinitely worse than the [illegible]
from which he had escaped. In traumatic
tetanus opium like all other remedies has
failed but it seems to have been the
chief hope of the profession from the earliest
date of medical science. But it appears reason=
=able to suppose that every indication capable
of being fulfilled by opium in this disease may
be much more promptly and satisfactorily
fulfilled by the inhalation of chloroform
In idiopathic tetanus the utility of opium
is much better established. Cases certainly have
been cured by it, when its administration was
accompanied by the internal use of calomel
and the local application of ~~blisters~~. Acrivant
The susceptibility of the system to the influ=
=ence of opium is here very greatly diminished

and it may be consequently given in large and frequently repeated doses. It should be remembered that opium when thus given in substance, is liable to remain in the stomach unacted upon to any considerable extent by the gastric juice and consequently the system will not be brought under its influence, it should therefore be given in Line and no intermission of its use should be allowed day or night. In Delirium Tremens its use is indispensable. And in this disease it should never be given in excitant doses but on the contrary should be given in large doses. I might here go on to speak of the therapeutical applications of Opium almost ad infinitum. There is scarcely a disease in the whole nosology of medicine which has not been subjected to experiment with this agent; and few indeed are the diseases in which Opium may not be given with more or less advantage during some period of their march or decline.

A sufficient number however have been mentioned to establish the importance of its character as a medical agent. The symptoms of poisoning by opium have been detailed upon a previous page. These perhaps would have been the proper place to describe the treatment but having overlooked it at that time, I will in conclusion briefly sum up the Treatment. When called to a case in which a poisonous quantity of opium has been taken, the only effectual mode of relief is to evacuate the contents of the stomach as soon possible, either by means of the stomach pump or by the more active ~~remedies~~, Emetics. In cases where the opium has been taken in substance the Emetics are best, as the diameter of the tube is sometimes insufficient, to admit of the passage of the masses in which it has been taken. The best Emetics are Tart. Antim Sulp. sinei, Sulp Cupri conjoined with Ipecacuanha and their action should

be aided by the free use of warm drinks by inhaling the fauces with a feather, by keeping the patient in motion, and by throwing cold water over the head. When neither the stomach pump nor any of the active emetics can be obtained we may give large doses of common salt or mustard. The stomach pump when used should always be passed through the nostril, otherwise the patient may bite it in two. There are no antidotes which can be depended upon.

After the evacuation of the narcotic from the stomach, the chief indication for treatment is to obviate the debility which always follows to a greater or less degree, and which is sometimes fatal. For this purpose we use the carbonate of ammonia, aromatic spirits of ammonia &c, internaly and sinapisms and stimulant frictions externaly. The electro

magnetic battery has been used with much advantage by Dr. Price.

When all other means have failed artificial respiration should be resorted to and continued as long as there is the least hope, But by far the most important point is to procure as soon as possible the evacuation of the poison from the stomach, And where other means had failed the stomach was promptly evacuated by injecting into it a pint of vinegar and immediately following this by the injection of four ounces of the Bi Carb. Soda, If after the system has triumphed over its terrible struggle, there remain any symptoms of Gastric inflammation the patient must be treated for it.

The End

R. A. Sutton

To Dr Wm. L. Wingate

Dear Sir —

Although it is a universal cu
impose upon Candidates for the degree
Doctor of Medicine the task of writing
essay upon some subject connected wi
the science, the custom is not based upon
supposition, that they will be able to add o
st anything new so far from it ~~I presu~~
presume it would be inconsistent and
st to suppose, that they would communicat
hat is known in connection with the par
ubject of their essay. The period of stud
short and the Candidate, unless indeed
apacity for knowledge be far above the ge
s of mankind, at the expiration of the season
reperation feels necessarily, that he has b
arned the method of studying to advant
other words that he has just learned ho
learned. I trust therefore that in the peru
the pages of this Essay, which I have taken
berty to emblazon with your name, th
ou will exercise toward its author that
ty which he justly deserves.
The ability possessed by a writer to expre
deas upon any subject depends measur

upon the natural talents with which Na-
ture has endowed him. She having been very
unmindful of me in this respect the remarks
which I shall make, you may consequently
expect will be destitute of that polish, which
others more gifted may bestow upon their
sentences. Notwithstanding these facts all, I desire that
you will accept the inscription of this essay
with all its imperfections, as a faint tribute
of the veneration and esteem in which I
hold your memory. Hoping that your career
of usefulness may be protracted to length of
days I beg leave to subscribe myself your
sincere Friend and Grateful Pupil

The Author.

Inflammation.

There is perhaps no pathological condition to which the human organism is subject more interesting to the medical man than inflamation. It is interesting as a matter of curious inquiry when we take into consideration the phenomena it presents, and their modifications as it happens under different circumstances and interesting when we consider the various functional and organic lesions which its consequences involve to him whose office it is to arrest the progress of disease or if this be impossible to conduct it to its most favourable termination. It is interesting too from the fact that it is frequently reparative in its tendency. It establishes adhesion between serous surfaces thereby preventing the flow

of the acrid contents of abscesses into serous cavities which would excite fatal mischief there. The knife of the surgeon does no more frequently than would be accomplished by the inflamatory process, save that he brings about the same results quicker and consequently with less expenditure of the vital forces of the organism. It is a disease which perhaps is present in three fourth's of the maladies to which our nature is subject, either preceding and giving rise to the other symptoms or coming on in consequence of them. It interests alike the Physician and Surgeon, and lastly it is frequently excited to bring about certain results, as the cure of Hydrocele by establishing adhesion of the walls of the Tunica Vaginalis, and for the obliteration of false Joints &c

Inflammation is divided into acute and Chronic which differ essentially in the phenomena they present. It will be my object in this essay to treat of the former of these varieties. —

The usual Symptoms which Characterise acute inflammation are Redness, Swelling, heat, and pain. These are generally present though differing in intensity and Character under different Circumstances. The may and do however have inflammation without redness as when it is located in Cartilaginous Structures. or the disease may exist without Swelling as when it exists in osseous tissue. From these and other Considerations the maxim is deduced that this disease will differ as it is seated in different tissues, or in different parts of the same tissues as it is Circumscribed or diffused as it happens in different Constitutions as it is of

the acute or Chronic form, or of the Com-
mon or Specific form. —
In accordance with the plan pursued
by a great writer upon the practice of
Medicine I will endeavour to Sketch
out the course and termination of ordina-
ry phlegmonous inflammation, and
then enquire into the nature of the Symp-
toms presented.
Let us suppose that by accident some
foreign Substance is introduced into
the arm or leg, the part will soon
Change its Colour from the ordinary
hue of the part to that of a lively
florid Colour, which discolouration
will vary in extent according to
the severity of the irritating Cause. This
is Redness. Partially succeeding and ac-com-
panying this the part begins to enlarge
and become turnid, the Skin presents a
Shining and Stretched appearance, and

the edges of the wound become thickened. This is Swelling. At the same time the patient experiences a sensation of heat or burning in the part, as though the temperature was greatly augmented. This particularly so in inflammation of certain tissues. This is the condition called Heat. The Patient also experiences a sense of aching, amounting frequently to absolute pain which will with a few exceptions always be aggravated by pressure. This is Pain and Tenderness. — If now the foreign substance be removed and the irritation be removed or allayed by anodynes, and the injury done be trifling the symptoms named above will vanish, and the part resume its natural or normal condition. The inflammation is then said to be resolved or to

have terminated in Resolution. If however the foreign substance be allowed to remain, or the injury done by it be extensive the Symptoms go on to increase in violence until a Sense of Throbbing is felt, preceded and accompanied often by Rigours followed by febrile Reaction. This is inflammatory fever, and the Sense of throbbing in the part is indicative of the formation of Pus. On the Surface of the inflamed part there will now be seen a projection of a whitish appearance which will break and a fluid be discharged of the Colour and Consistence of Cream, denominated Pus. This is Suppuration. If this be excessive in amount the Patient will be exceedingly weakened or will experience slight Rigours

followed by feeble reaction Characterised by a circumscribed flush upon the cheeks which lasts for a time and then terminates by profuse sweating. This is Gastric Fever. This stage continuing the inflamed part will assume a dark purple Colour, covered perhaps with blisters which discoloured part will probably be surrounded by a red inflammant margin. This is Gangrene or the death of the part. This will soon begin to seperate from the living tissue and the process is called sloughing. The Symptoms now which during the early part of the affection were of a high grade of action - full bounding pulse, flushed countenance, eyes suffused, with redness & furred tongue may now be decidedly Changed. The patient complains of weakness

inclines to sink in bed, the eye becomes listless, the tongue becomes coated with brown sordes, the pulse is quick and thready, the excretions escape involuntarily, the skin is bathed in a clammy perspiration, low muttering delirium comes on, and death closes the scene. This is typhoid fever. — Supposing however that the suppuration was moderate in amount and the patients constitution a good one, a slight degree of excitement will be kept up and after the suppuration has lessened in amount there will be seen in the bottom of the cavity formed by the breaking down and discharge of the tissues small red prominences called granules, which increase until the cavity is filled up. This is granulation. A new skin is now formed over the part exhibiting a

white contracted appearance. This is Cicitrization.

Having now given in detail the ordinary phenomena presented by inflammation and its terminations and results I will endeavour briefly to explain their nature or Cause.

Redness.

"Ubi Irritatio Ibi Fluxus" is an aphorism universally admitted. The local excitement Created by the irritating Cause determines the afflux of blood to the part the Cappiliaries become engorged and sometimes burst and their contents are extravasated, moreover vessels which in health are destined to Convey only Colourless Corpuscles now Carry red blood, as is seen in Opthalmia. It is supposed also that new vessels are formed, which admit a small quantity of blood. The above are the Causes to

to which the increased redness in inflammation are attributed, all of which have been abundantly proved by experiments on the lower animals and observation on the human being. The degree of redness will of course vary according to the intensity of the disease and as it is seated in different tissues. An inflamed tendon is less florid than the skin, and the skin less so than mucous membranes. Parts which circulate white blood as Cartilages will exhibit little or no redness.

Swelling.

This is attributable to the effusion of serum and sometimes of blood into the intermuscular tissue and to the disarrangement of the parts. Swelling alone will not constitute inflammation - for we frequently see

swelling in various regions of the body where there is no inflammation present, as in hernia, Hypertrophy &c. The swelling in inflammation does not come on so rapidly as in sanguineous infiltration resulting from blows or the rupture of vessels, nor is it of tedious growth like tumours occurring in various regions of the body. Although swelling tends ordinarily to cure by relieving the distended vessels thereby enabling them to resume their wonted action, still it is productive occasionly of fatal consequences as when effusion takes place on the brain.

Heat

The cause of the increased heat in inflammation or the question rather of its existence has been a theme of discussion. The fact that experiments with the thermometer show that

the temperature of ~~the~~ an inflamed part is not greater than the normal temperature of the blood in the central regions of the body has induced many to believe that the sensation of heat felt by the patient was referible solely to the morbid condition of the nerves. Granting this to be true still there is a slight increase of temperature in the part and it is possible, yea probable, that heat is radiated in abundance so that this fact may explain the apparent paradox. This is a condition that is never absent in inflammation. Its presence is referrible it is supposed to the increased afflux of arterial blood into the part and the consequent increase of the amount of Oxygen, which promotes the rapid Oxygenation of the tissues, which process is attended with the evolution of heat. This is termed the vital mode.

There is another mode which is called by an author upon this subject the physical mode. "The greatest increase of temperature" remarks our author "takes place in the animal tissues after vitality has ceased, as shown by the experiments of Drs Dowler, Davy and others where the thermometer placed in the thigh after the departure of animal life rose to 113°." Now the temperature of the body in the central regions has never been found to exceed 107° so that the physical power of generating heat would seem to exceed the vital power. "The heat therefore" he supposes of an inflamed part is due partly to vital action through the medium of arterial circulation, but principally by molecular death in the constituents of the blood and tissues; for the moment vitality ceases to exist in

in the molecules they become amenable to the laws of physics and the generation of the highest temperature in a part is due to chemical changes in the molecular constituents."

Pain.

This is also an accompaniment usually of inflamation. Cases however are on record of inflammation of the brain, pericardium and other organs existing without pain. Neither does its presence necessarily imply inflammation; for it may & does exist where no inflammation is present as in neuralgia, Cholick &c. If the pain be attended with tenderness on pressure it is perhaps always inflammatory. There are however some few exceptions to this, as to all other rules, as inflammation of the ball of the great toe and heel which are said to be relieved

by pressure. And indeed this method has ~~been~~ of late been resorted to in the treatment of arthritis and may perhaps in coming time be found applicable in other cases. It ~~is~~ varies very greatly in severity in different locations and in the character. Thus in inflammation of the skin it is of a burning pricking character, in mucous membranes of an aching burning character, in the serous membranes it is sharp and lancinating. Parts which in health are endowed with but little sensibility become exceedingly sensitive when inflamed as the ligaments, cartilages and bones. All of these are painful when inflamed because of their unyielding nature. The tenderness which is produced by pressure is attributable to the irritated condition of the nerves.

The local disturbance in consequence
of the irritating cause, or the
morbid irritability of the nerves of the
inflamed part being transmitted to
the great centres of the nervous system
is from thence reflected to the cir
culatory system which becomes
accelerated and fever results in con
sequence of which secretion is retarded.
the skin is hot, the urine is scanty and
high coloured, there is thirst, the
tongue becomes furred, the eyes are
injected, the pulse is full and hard
and the patient perhaps has head-
ache. These symptoms will partially
or wholly subside when suppuration
occurs, and if resolution occurs
they will of course cease altogether.
The next point to be considered
will be the terminations and results
of Inflammation

Resolution

With regard to the manner in which resolution takes place it can only be said, that either the irritation was so slight, or that it was removed by depletion thereby emptying the engorged vessels and diminishing the bistergo, or the extraction of a foreign substance and allaying nervous excitement by anodynes, that in all of these cases the "bis Medicatrix Naturae," meeting with no obstacle restored the part to a state of soundness. These means to be successful must of course be employed early.

Suppuration.

It seems to be a law in the animal economy that all injuries shall be followed by more or less excitement of the general system.

Nature thereby it would seem make
an effort at reparation. There is a
constituent of the blood denominated
fibrin, which in the normal con-
dition of the body is present in the
proportion of three parts in the
thousand. This material is that
which is assimilated and forms
under vital laws or their operation
nearly all the tissues of the body.
This substance is elaborated from
albumen, which material is found
in the blood and is formed from
the ingesta of the animal by
a process denominated digestion,
after which process it is absorbed
and enters the circulation. The
nature of the laws ~~of the laws~~
by which fibrin is elaborated
from albumen and its subse-
quent assimilation, as well as ~~as~~

the operation of vital laws is involved in obscurity and are likely to remain so. True there are many ingenious theories extant founded some of them upon microscopical investigation professing to explain vital operations both in health and ~~in~~ their modifications in disease minutely, which are interesting because of their ingenuity and are to use the language of one distinguished no less for his mature judgment than ready wit "very good until they are overthrown" notwithstanding all this it must be admitted that our knowledge is yet very limited.

It has been ascertained that the excitement before spoken of is always attended with an increase of the relative amount of fibrin in the circulating blood. Some have supposed that fibrin was elaborated from albumen by a kind of coagulation caused by the heat of the organism, and that the increase of temperature in inflammation

was followed necessarily by an increase of fibrin. It is this increase in the relative amount of this material that gives to blood drawn in this disease its buffy appearance a circumstance which was not mentioned before, and a circumstance, which when it is associated with the symptoms before mentioned may be regarded as pathognomic of inflammation.

In that kind of excitement which is termed reparation there is but slight acceleration of the circulation "attended with an incident increase of fibrin cells or plastic elaborating material of the blood; which deposit fibrin by exudation corpuscles formed in the transuded liquor sanguinis, the fibrin assimilates with the surrounding tissue becomes organised and forms a part of it" This is nature's plan for repairing solutions of continuity by violence or inflammation.

But in inflammation proper where nature is labouring by violent action of the propelling power of the circulation to relieve the congested capilliaries of the inflamed part by driving the blood with increased velocity through the vessels and fails so to do, she seems only to add to the mischief; for the vessels by the vis a tergo become more and more engorged effusion of the liquor sanguinis and of blood itself takes place in the interstitial spaces in contact with the inflamed tissues; here its vitality is soon lost and the play of physical laws begin resulting in its decomposition, as well as the structures in its neighborhood, and the altered fluid makes its escape out of the abscess formed by the decomposed tissues (or its cavity rather), which process as has been remarked before is always attended with the evolution of heat.

Mortification.

This term comes from mors death and fio to become, and signifies the death of the part. This may result either from inflammation or deficiency of power in low conditions of the organism. It has been divided by authors for the sake of convenience into Gangrene and Sphacelus; the former signifies the dying and the latter the complete death of the part.

Gangrene — The symptoms which herald in this condition are the loss of sensibility in the part, the appearance of a livid purplish hue, the swelling abates, and the part is frequently covered with blisters. The constitution if the gangrene be extensive exhibits pathognomic signs of this condition. The symptoms become typhoid, the pulse becomes thready, the surface becomes cooler, the patient sinks in bed and discharges his evacuations

involuntarily and unless ralied by stimulants low muttering delirium and death speedily close the scene. Irregular and hurried respiration attended with hiccup, are signs which we omitted to mention. The disease if circumscribed will be attended with little or no general disturbance at least in some regions of the body. Mortification of internal organs especially those concerned in the great functions of respiration, and digestion, is always grave. It will be recognised by the constitutional signs above enumerated. Gangrene as has been before remarked is the dying of the part and requires for its cause some influence which shall be sufficiently powerful in its nature to destroy the vitality of the molecules of the blood so that full play may

be given to physical causes. Nature by the deposite of organizable fibrin generally marks the boundaries of mortification, which deposite from the shrinking of the dying tissue is made to appear as a prominent ridge. The appearance of this ridge is regarded by the surgeon in amputation as the boundary of the incision.

Sphacelus

This is the complete death of a part. When this takes place the tissues exhibit a dry shrivelled appearance and are gradually converted into gases which are highly volatile and obnoxious to the smell.

Causes of Inflammation.

These are divided into two which are predisposing and those which tend immediately to excite the disease

Predisposing Causes — These are all those influences which tend to debilitate the organism and lessen its vital resistance, for this vital principle when possessed of proper tone ~~and exciting~~ tends directly to prevent the setting up of morbid processes. It is morbid impressions upon and derangements of this principle be it what it may that predisposes us to every ill to which our physical frame to which it is heir. By this law inflammation itself predisposes to inflammation and in addition to this the whole Catalogue of influences as remarked before that weaken the vital powers and thus lessen its resistance to morbific influences.

Exciting Causes — These are those influences which excite or light up morbid action by directly injuring or irritating a part. Among these influences are wounds, undue pressure, the retention of foreign

bodies in a wound excessive heat, excessive cold poisons etc. There are beside these a class of causes which are termed specific, which give rise to specific forms of inflammation - as mumps, ~~small~~ Epidemic erysipelas etc. The nature of these causes are wrapt in complete obscurity, comparitively nothing being known of them. Sometimes inflammation differing in character from those termed specific comes on from causes unknown and is then termed spontaneous

Treatment.

Inflammation though a violent disease and tending directly to disorganize the living tissues in which it ~~may~~ is be situated is nevertheless generally amenable to treatment. It is of paramount importance in the treatment of this disease that prompt and decisive measures be made use of early.

These measures divide themselves into gen
eral and local. In slight cases of Cir
cumscribed Phegmonous inflammation
little besides local measures will be necessary.
Blood letting— this is by far the most
important agent in subduing inflam-
mation especially if located in certain
tissues as in serous membranes, or in the
Parenchyma of organs; But when
the disease is located in mucous mem
branes bleeding generally is not so
useful neither so much borne and this
is still more the case in Specific forms
of the disease arising from a peculiar
morbid poison. Blood letting in the
instances mentioned and other cases
may well be said to be the chief anchor
of the physicians hopes in arresting
a disease depending as it does upon
engorgement of the Capillaries of the
part, and the violent throes of Nature

failing to relieve the engorgement now obviously increasing the mischief. The first object of the indications is to diminish both the force and volume of the circulating current, thereby relieving directly the congestion and lessening the tendency thereto. In full robust subjects where it is desirable to make a decided impression and abort the disease the patient should be bled in the upright position and from a large orifice. The impression made upon the brain and nervous system by this sudden abstraction of blood is, that the operation is frequently followed by syncope. The frequently see the symptoms greatly ameliorating and sometimes completely resolving from the effects of a generous bleeding. The state of syncope or prostration which follows bloodletting is soon followed by a rallying of the vital forces, which is termed Reaction;

Of this there are two varieties the Sthenic and Asthenic, which must not be confounded together, as they are essentially different in nature and require different means of treatment. Bleeding however may be followed when proper in quantity by a quiet reaction and the pulse remain tranquil, and all the symptoms abate. In the Sthenic, the pulse will resume its tension and the other symptoms resume their violent action. The indication now is to bleed again. But on the contrary if the bleeding be too profuse, or the patients Constitution feeble, the reaction will be Asthenic indicated by nervous irritability frequent somewhat irregular and [illegible] dy This condition is best relieved by anodynes which relieves the headache oppressed breathing etc. and procure sleep Antimony— This is also a highly important agent in the subduing of

of the excited condition of the heart and arteries and when effusion has taken place of favouring its resorption. It is employed in this disease for its sedative and relaxing effects, which conduce to diaphoresis and expectoration. Indeed so potent and decidedly salutary is the action of this agent, that sometimes it supersedes the lancet as in the case of Children and old people, and in weak Constitutions.

Mercury is also an exceedingly important agent in the treatment of this disease. It is frequently prescribed in conjunction with Antimony and the Nitrate of Potash in the well known formulae called Nitrous Powder. Its Modus Operandi is not well understood, but it is supposed with some plausibility, that when brushed to its constitutional

effects to act revulsively. This it ac
complishes by stimulating the whole
secretory apparatus to increased action
calling thereby for an increase of blood
to sustain the effort and thereby relieve-
ing the congestion. Secondly it seems to
diminish the plasticity of the blood
by defibrinizing it and thereby ob
viating the tendency to adhesion of
surfaces upon which fibrin is effused by
rendering it incapable of organiza
tion, or at least greatly diminishing
its tendency so to do.

Purgatives are indicated also in this disease
for their depleting and revulsive effects
except in inflamation of the Gastro
Intestinal Mucous Membrane, for
when this is the case they increase the
irritation; but even here it will be
necessary to empty the bowels by mild
laxatives and purgative enemata.

to get rid of the irritating contents of the intestinal tube. Hydragogue Cathartics are necessary when treating the sequelae of inflammation in the form of serous effusions.

Emetics too are used sometimes in this disease from their tendency to equalize the circulation. When used for this purpose they should be contra indicated in Cerebral inflammation as the act of vomiting determines the circulation to the brain. Emetics are employed for the expulsion of mucous and false membranes from the respiratory organs particularly in Croup and in the complaints of Children. Dr Dunglison of Philidelphia has laid much stress upon the use of Opium in inflammation after full depletion. He recommends that it should be given in full sedative

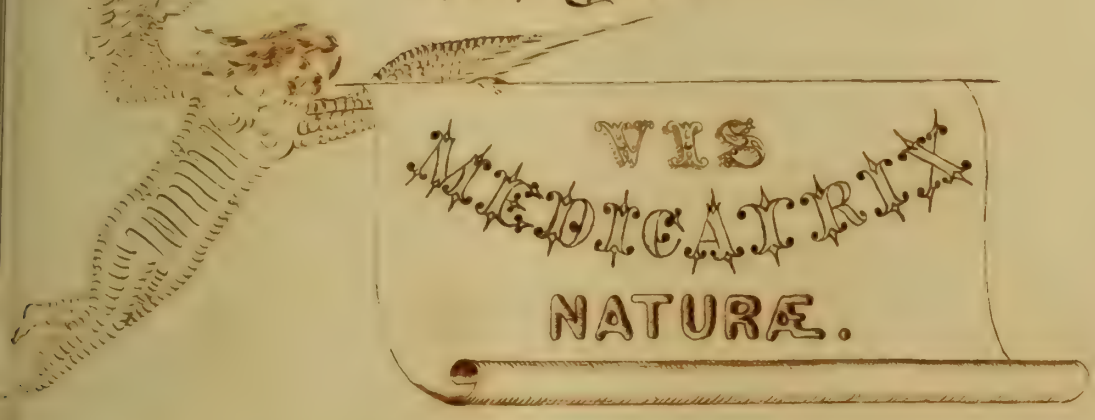
does and says that it is followed by prompt and decisive relief.
Refrigerants and diuretics too are frequently indicated in the course of the disease.
Local Means - Of these local bleeding is very important in those cases in which as before remarked general bleeding is not well borne. Cups constitute one of the means of abstracting blood locally. They are frequently useful after general bleeding by depleting directly over the diseased organ. Besides depletion cups and leeches act revulsively too. Leeches are used for precisely the same indications save that they are applicable in some situations where cups are not as about the eye that are
In slight cases local bleeding will be sufficient to subdue the inflammatory symptoms in connection with certain local

means to be spoken of next, briefly. Of these Emolient poultices are useful in calming veritation and softening the tissues thus favouring resolution and hastening suppuration when it has begun. Cold applied locally is useful in superficial inflamations occuring about the joints and in cerebral disorder but contra indicated in deep seated inflamation where it only increases the congestion and augments the pain. The sensations of the patient however must determine our choice of these. Counter Irritation by rubifacients and Epispastics are also useful by inducing the circulation away from the disease part and should be employed after apropriate depletion. Blisters are useful after apropriate depletion by their protracted revulsion. In Typhoid conditions of the system these means often

become of imperative necessity to call
the dormant powers of life.
There are many other points connected
with this subject which I had
time & space might be noticed
but as I promised in the outset
to be brief, and stated my reasons
for so doing. I shall now close
my brief and imperfect remarks,
by expressing my sincere and
heartfelt gratitude to the able
faculty of the time honoured Uni
versity of Maryland, for their
efforts in the great work of
inculcating "Medical Truth" Re
jecting the vague and speculative
theories of the day, their efforts have
been directed to the inculcation
of established theories and known
facts. May they long live to
be useful in this their high

and exalted calling, entitling them
to rank as the best of teachers, and
benefactors of their race.
Long live the University of Maryland! Should I be esteemed worthy
by her Faculty to rank among her
Alumni it shall be the effort of my
life to shed credit upon her as my
Alma Mater, and enhance her
interests by every laudable means.
And now Gentlemen Yours Respectfully,
William D. Mobley

AN
INAUGURAL DISSERTATION
on the



Submitted to the Examination

OF THE PROVOST, REGENTS AND

FACULTY OF PHYSIC,

OF THE

University of Maryland.

FOR THE

DEGREE OF

DOCTOR OF MEDICINE

Whether the term "agent" or "cause"
is the most correct to apply to this force,
has always been a disputed point;
but though we are not at liberty to
call it an agent from any discoveries
that have been made in regard to it,
yet the license of usage will
perhaps permit me so to speak of it.
it being at the same time distinct-
ly understood that by the term
agent is meant not a tangible
substance that may be perceived
by any of our physical senses, or
that may be acted upon by chem-
ical reagents, but as the movings
of a certain something which for
want of a better name we call an agent.

to withstands and for a time successfully combat his indomitable enemy: he has instilled, into him, and forming part and parcel of his composition, a certain vital principle, a preservative tendency, an invisible, imponderable, omnipresent, elastic fluid, so subtle as to be recognised but mediately; for like the electric fluid, it is seen but in its workings: this master stroke of Nature is the Vis Medicatrix Naturæ.

It is not my purpose to offer a new specimen of the folly of research for this professional "ignis fatuus," but to review some of its laws and actions, and there-

it in the capillary vessels of the circulation, others locate it in the fluids and others in the solids of the body. Indeed, so various and conflicting have been the theories advanced to expose its habitation, that we are obliged to throw them all aside, and to use our own judgment aided by the experience of others in forming our conclusions as to its nature, and in marking out the best and safest grounds to occupy in our adjuvancies to its efforts.

In considering the Vis Medicatrix Naturae, it is almost impossible to help confounding it with life, — in truth they are to

[illegible] identical; for as we will
hereafter see, an inherent Conserva-
tive power may be detected at the
commencement, is essential to the
existence, and is only absent at
the termination of life; so inti-
mate and so intricate are the
connections between the two, that
I may be excused if at times I use
the words almost if not quite sy-
[illegible]

Connected with and de-
pendent upon the impregnation
of the ovum do we find many
[illegible] practical but
professional interest, and suffi-
ciently important among these
is the fact that at the moment

impregnation the ovum has imparted to it a Vis Conservatrix. This is well proved by the generally admitted fact that many diseases may be transmitted from parent to child.

The ovule ruptures the zona pellucida and is fecundated by a spermatozoon; the result is fecundation; but not only has the ovule received life, but with it a principle which is to preserve and prolong life, i.e. the Vis Medicatrix Naturae; but this Vis has certain peculiarities engrafted upon it. If the father is tuberculous, the child has a proclivity to the formation of tubercle; and the same is

the case with gout, rheumatism, cancer, &c., which when derived from the father could have been transmitted at no other time than at the moment of impregnation: [illegible] proving that "at the moment of impregnation the ovule has imparted to it a Vis Conservatrix."

The truth of the above proposition may be illustrated in a different way. The formation of the living ovum is not the result of a morbid action; it is a natural, healthy process which must result when certain conditions obtain. The definition of inflammation which best describes its properties is that it is "an increase of the flow of blood

[illegible] part with motion partly retarded and partly accelerated, with a tendency to the formation of new productions." Still though its tendencies may be conservative, inflamation is a morbid process; but in the case under consideration we find molecular increase independent of any direct connexion with the mother and as the result of purely physiological laws, - laws whose tendencies are conservative, - laws which in fact constitute the Vis Medicatrix Naturae.

Not only is the ovum endowed with a Vis Medicatrix before it is ushered into the external world, but this antagonist is already ful-

fully armed and equipped to combat his natural enemy disease in whatever form he is likely to present himself.

Instances are not unfrequent of children being born with syphilis, variola, &c., which illustrate in a striking manner the utility of this happy provision. The truth of the proposition is evident for if the fœtus had not this power the disease would of course terminate its existence, and we would never hear of the births of children covered with the small-pox eruption. This fact, I imagine, sufficiently proves that the fœtus has developed a strong power of resisting disease and death,

w in the causes of decay with which the external world abounds.

Although man is gifted with [illegible] to [illegible] liable to be influenced by disease, he would be imperfectly prepared to pass through life, and Nature aware of this fact has fortified all his organized tissues with an amount of conservative force adequate to any reasonable demand that may be made upon it.

It would be a profitable employment to enter into an examination of each of the tissues with reference to this subject, but it would require more time and ability than

[illegible] for content myself with a superficial consideration of a few of the more important.

[illegible] constitute the framework of the body; they are intended to shield the more important organs from injury, to support the body in the most convenient position, and to furnish points upon, and from which, muscles may act to produce the various movements of the healthy economy.

In order that these indications may be filled in the best manner, it is nescessary that bones must be strong to give support, and this requisite is met by nature in a most

admirable manner. Bones are composed of [illegible] [illegible] [illegible], which are in the best relative proportion to [illegible] [illegible]. The [illegible] parts are joined together in such form and with such firmness as to give us the utmost strength compatible with beauty and lightness. This is well illustrated in the case of the femur, which is a long shaft, curved to break shocks, with [illegible] [illegible] [illegible], a rounded head playing, in a cavity to give the great extent of motion afforded by the "ball and socket" joint. [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] by the [illegible] that they afford increase muscular power, smooth surfaces

[illegible] facility; a canal traversing its length to give it lightness and increase its strength; Haversian canals for the transmission of nutritive vessels to all parts of the bone, and an investment externally of periosteum, and internally of a medullary membrane, which nourish the external and internal surfaces, and which in certain pathological states of the bone perform an important office.

When we consider the immense importance of the skeleton as a part of the body, and the great inconvenience and even danger resulting from disease of it, it is not surprising that nature should have en-

dowed it with so large a share of preservative force, and in truth nature does not afford a more beautiful example of the potency of the vis Medicatrix Naturae. than is afforded in the reunion of fractured or renewal of removed portions of bone. Called into action to repair a serious breach, she immediately addresses herself to her task. her movements to accomplish which are well calculated to excite wonder and admiration; for not content with reunion of a fractured bone, she will, if I may be allowed the expression, polish the splice.

But I must be more brief, as time presses.

An evidence of its presence in muscular tissue is found in the muscular coat of the uterus, which by virtue of a conservative power is at a certain period of utero gestation called upon to contract. By these contractions the child is expelled, the placenta and membranes still remain until renewed uterine contractions expel them, removing what, if suffered to remain, would become a source of irritation and inflamation: but by the expulsion of the placenta the open mouths of the uterine vessels are exposed. This danger is also removed by the muscular contractions, which by constringing

and constricting the vessels prevent hemorrhage.

It is well known that if an impediment to the circulation exists, the heart will labour to overcome it; or that if a foreign body is in the bronchial tubes, that coughing will be induced and kept up till the offending body is removed: now no one pretends to assert that non-striated muscular fibre, is governed by the will, so that here we have marked evidence of the presence of the Vis Medicatrix Naturae.

A Vis Conservatrix in the nervous system is well displayed in many ways, but I shall confine myself to one or two examples.

The brain and its functions are easily affected by an unhealthy and vitiated blood, and when an obstruction exists to the passage of bile into the duodenum we find that other emunctories than the liver are called upon to eliminate it, as evidenced by a fetid breath, and the presence of biliary ingredients in the urine; thus is the blood relieved of that which if retained would poison the brain.

A familiar example of the effects of bad blood upon the brain is seen in the breathing of an asthmatic person during an attack of the disease. The brain, aware that it is receiving a supply of

been that it is not properly oxyge-
nated, to [illegible] an increasing
number of respiration to assist
the lungs in the performance of
their office, and it has been as-
certained that tuberculous depos-
it in the lungs will occasion
(even during the earlier stages of the
disease) a greater than normal
number of respirations per minute,
to compensate in this way for the
diminished calibre of the organ.

The intensity or develope-
ment of the Vis Medicatrix
Naturae is, as compared with
a standard, much influenced
by many circumstances, not
only by age, sex, and idiosyn-

be a pleasant one. It is here that the empiric has found the most material upon which to found his schemes of deception and personal aggrandizement, but it is also here that the medical philosopher can find the most ample scope for his researchings and discoveries.

A proper consideration of this subject is of course impossible at present, and even if all other things were equal, I am well aware that I am unequal to the performance. I must therefore content myself with a mere mention of some facts connected with it.

Miasmatic influence
has of late years attracted much
attention from the profession,
but as yet with but little increase
of knowledge as to its intimate
nature; its subtle workings
on the system have long been felt
and very many ingenious the-
ories have been offered to explain
its modus operandi, The conclu-
sions that are pretty well satis-
fied are that it is a morbid poi-
son which floats in the atmosphere
of certain localities which poi-
son is the conjoined product of
vegetable and animal decomposi-
tion, and that when it affects
the economy its action is character-

ized by the phenomena of exacerbation and remission, which phenomena are caused by the alternate rallying and recoiling of the marsh poison from the Vis Conservatrix.

But the enigmatical character of its composition and manner of acting upon the system, may be well illustrated by the manner in which our remedial agents are supposed by different authorities to control the disease; some attribute their power to a principle which they are credited to posess, called antiperiodic power; others ascribe their efficacy to their tonic properties. The first term (antiperiodic) is used to veil our ignorance,

"There are many diseases that are incident to but one climate to any considerable degree; again we find many diseases, which from a common to many climates have their symptoms so modified as to be recognized by different names. In one place the disease will reveal itself by symptoms that are so local in that joint so distinctly to the seat of disease that mistakes would be impossible. whilst in another district we will meet with such a mass of general symptoms as to cause great difficulty in making out the true seat of disease.

"We find an endless variety of descriptions of the disease call-

ed Dysentery, and an enormous list of medicines vaunted as specifics for it. Now it is a combination of many causes that developes these discrepancies of opinion and treatment. The influence of climate, endemic tendencies, and the general type of diseases for the year, are the more important circumstances that determine the contrariety of accounts; and these facts must be remembered whilst we peruse foreign authors, lest we be led far from the truth, in making up our conclusions.

Idiosyncrasies are powerful agents in influencing the type, progress and treatment

of disease, Thus we find many persons that are liable to mercurial Stomatitis upon the smallest exhibition of mercurial remedies, as I have myself witnessed, many persons disagreeably affected by the odour of roses, and I have recently heard of a lady who was thrown into convulsions by inhaling the odour of the fashionable perfume known as patchouly.

Age has its modifying effect upon disease, and this effect is neither inconsiderable or unimportant, we may see a case of [illegible] in a person [illegible]

[illegible] lobar [illegible]
[illegible] of [illegible] to [illegible] the dis-
ease [illegible] the lobular form.
and this fact connected with the
circumstance that children [illegible]
[illegible] their sputa renders the disease
difficult of diagnosis. After the
age of 6 years the disease is again
lobar.

An equitable distribution
of the vital force throughout the
system is necessary to the proper
performance of all the functions,
and consequently to health, and
if the normal amount of any part
is increased or diminished, the ef-
fect is [illegible] to a [illegible] de-
gree through the whole system.

[illegible] not a mere assumption.

[illegible] Redundancy or deficiency of the vital force in the part affected gives rise to other symptoms. Various organs are sympathetically connected with each other. thus if we find head-ache we enquire into the state of the stomach knowing that between the two there exists a sympathetic connexion.

There are [illegible] very interesting facts relating to the order in which the Vis Conservatrix repairs injuries: in fractures of bone with rupture of soft parts the external wound is first closed and then the bone reunited.

[illegible] will mention a case in point.

In the middle of the past Autumn an accident occurred in the bay which resulted in a terrible fracture of the tibia and fibula with disorganization of the bone and soft parts to the extent of 2½ or 3 inches. It was a difficult question with the attending Surgeons to decide upon the propriety or impropriety of an amputation. They at length determined to give the limb a chance. It was placed in an apparatus which gave it perfect support and quietude and every effort was made that could tend to the support and assistance of the vital forces. For a time the result was doubtful

[illegible]
the Vis Medicatrix Naturae
[illegible]
her noble shrine, overcome the
disease, and improvement was
manifest, and proceeded until
the whole of the disorganized sur-
face was renewed. as yet there
was no bony union, though callous
was thrown out to some extent.

[illegible]
at [illegible] the progress of repair was
interrupted until the intercur-
rent inflammation was subdued,
after which the process of reunion
again [illegible] and up to this
time (Feb 13th /51) has continued,
[illegible] that

which, though of the utmost im-
portance to [illegible] of our noble
profession is but too little under-
stood, I have, whilst hastily
[illegible]
[illegible]
I hope be of importance to me;
this is a theme upon which any
one may [illegible]
[illegible]
acquirements, our beautiful the-
ories, [illegible], our
wonderful "tact" but after all
we are but assistants of the phy-
sician which Nature has placed
in this frail tenament to guard
it from injuries and the [illegible]
[illegible] disease

Thesis.

"The noblest study of mankind is man," and the most ennobling science that which has for its object the prevention of disease, the restoration to health, the alleviation of pain, and the soothing influences of a peaceful Euthanasia.

Man in his primitive state was exempt from many of the dangers and sufferings which his representatives of the present day experience. Reared in a state of nature, his wants were few, and easily satisfied: he knew not what it was to die prematurely, — to be stricken down in the strength & vigor of early manhood, ere yet the great task of life was accomplished, or even fairly begun. He grew from infancy to manhood, all his faculties & organs gradually expanding, & conforming themselves in obedience to certain laws, & then again as gradually declining, until Death came, not as the violent disorganizing agent of mind & body, but simply as another among the gradual changes to

which he was subjected in leaving as the transition for the immortal part of his Imperial organization.

Among the moral causes which have abridged & modified the life of man there is one which most particularly merits the attention of the Philosopher — it is civilization. Civilization by polishing man & depriving him of his primitive rudeness, has made him purchase this advantage at the expense of a multitude of diseases of which the first inhabitants of the world were ignorant & with which the savages who only give way to the impulses of nature are still unacquainted. Man, in associating with his fellow beings, has in some measure relaxed the ties of his existence. Society, by extending the circle of his wants, by giving greater energy to his passions, & by generating those that are unknown to the man of nature, has been a fruitful & inexhaustible source of calamities. I do not mean to say that civilization & refinement are incompatible with the observances of natural law, or that disease & festilence are the necessary consequence of learning & social intercourse. It is the abuse, not the proper & legitimate use of knowledge, which has entailed upon us "the thousand ills which flesh is heir to," & for the amelioration

of which the Goddess of Science has been so long & so often invoked. — When man thus found himself surrounded by dangers, his frail existence incessantly threatened with a thousand destructive scourges, his organization continually subject to alterations which exposed him to a multitude of diseases, his views were naturally directed towards the means of preventing or remedying these evils. Hence the origin of Medicine in the necessities of man, & its cultivation as a science in the transmission & developement of his infirmities.

Medicine, as a practical science, consists in the observance of those laws which are best calculated to preserve the healthy action of the various organs of the body, as well as the judicious & correct application of such remedies as experience & observation have proved useful in modifying disease, in controlling its morbid tendencies, & in aiding nature in her constant efforts to restore the normal functions of the human economy. — The first of these is termed Hygiene, the latter Therapeutics; & it is to this latter, that

the remarks of the present essay will be chiefly confined. —— In the application of medicines to the treatment of disease, regard must always be had to the physiological action & condition of the organ or organs affected, their relations to one another & the system at large, & finally, to the amount & kind of lesion sustained, & the effects consequent upon the continuance of such phenomena.

The Animal Economy in departing from a state of health either rises above, or falls below the natural normal standard, - its functions are either excited or depressed. This is not only true of the system as a whole, but applies equally well to individual organs. Hence it is evident that all remedial agents must be, in a general sense, either Stimulants or Sedatives. This would appear to be the natural division: thus, when "tone" is given to the general system, as in case of debility, it can only be so by stimulating the depressed condition of the vital forces; when any of the secretions are to be augmented, we stimulate the the appropriate organ to increased func-

tional activity, & so of all other therapeutical means. Occasionally we find both these qualities combined in the same agent:- the sedation may be primary, & the stimulation secondary, or the stimulation primary & the depletement secondary. Again the effects of a remedy may be directed to one organ or another, as the case may demand. These various results are produced according to the dose, or the circumstances under which the agent is administered. For example, the primary effects of opium is stimulant, its secondary sedation; or a small dose is stimulant while a large dose is sedative with its stimulant effects of but short duration. Again, an agent in a warm atmosphere excites the skin, & promotes diaphoresis, while in a more cool atmosphere its action is directed to the kidneys, & their functional activity increased. All medicines produce their effects in one of two ways: either they make an impression upon the solids which is transmitted throughout

The system or to a particular organ by sympathetic
irradiation, or they are absorbed & conveyed in the
current of the circulation, & thus permitted to pro-
duce their specific & general effects according
to their individual peculiarities, & this brings us
to the consideration of the chemical relations of
the substances introduced, to the constituents
of the blood. But before closing this, let us for a
moment examine the term Sympathetic irradi-
ation." To say that a part is sympathetically af-
fected, is simply to say that all the organs & tis-
sues of the animal economy are so bound together
by the various appendages of the sensorium com-
mune, as to form one harmonious whole, a kind
of vital circle which is continually conveying
impressions to & from the brain, in such a way
that changes produced in one part or tissue,
must necessarily produce alterations through-
out the whole; & it is this dependent con-
dition of the different organs upon one ano-
ther that is termed Sympathy. That such

actions are thus propagated through the system may be proven from known laws of nervous excitement. For instance a substance taken into the stomach produces no appreciable effect there, but sympathetically acts upon the brain, whence the influence is again transmitted either to the point of the primary impression, or to such other as is most favorably circumstanced for the peculiarities of the case. Much might be said in relation to this subject, but as it would occupy too much space, a further notice of it here is deemed unnecessary & superfluous.

As to the Modus operandi of medicines in a chemico-therapeutical point of view, as above alluded to, a very slight examination will show that it involves two important questions, viz: What is the form in which medicines act upon the system? and secondly, what is the manner in which they exert their action! Thus, with respect to the first question, it

may be asked to what in any particular case are we to attribute the effects of the medicines? Are these due to the operation of the entire & undecomposed remedy, that is to the whole of the constituents acting together or are they due to one or more of its constituents acting separately; or are they due to the formation of a new compound? These are intricate questions, & cannot perhaps be satisfactorily answered. We may however on the authority of an acute modern observer state the following theory:

1st, That a remedy must be absorbed before it can exert any remote action on the Economy.

2nd, That the remedy must be soluble, or susceptible of becoming so in the fluids of the living body, before it can be absorbed.

3rd, That most remedies are subject to chemical changes, during their passage through the animal system.

4th, That these changes are regularized

by ordinary chemical laws & their definite results ensue.

Taking this view of the matter, we are enabled to offer a Physiological explanation of those Physiological Phenomena, which bass under the name of idiosyncrasies, or of tolerance & intolerance of remedies. For knowing that the action of a medicine is not always proportionate to the quantity administered — that Calomel & most resins, for example, will frequently operate as powerfully in moderate quantities, as when they are exhibited in large & very irrational doses, we may infer that the peculiar solvents to those remedies exist only in limited quantities in the intestinal canal, & hence that only a limited quantity of the medicine can be brought into an active state. Thus for a familiar illustration some persons are especially liable to the action of Calomel. This is said to be the case particularly with

sailors & the inhabitants of maritime districts. & the physiological explanation is that the fluids of their bodies contain large quantities of alkaline chlorides, so that there is a more complete solution & absorption than under ordinary circumstances. On the other hand, it has been noticed that children, especially those fed on milk, easily accept very large doses of calomel, the fact that the fluids of their bodies contain only a small quantity of alkaline chlorides. So again the sick, who have been living for some time on low diet, have the fluids of their bodies so exhausted of chlorides, that they bear large doses of calomel without inconvenience. It is also known that the stomach is better able to bear the action of tartar emetic when it is empty, than when it is full, & this is because there is less of the acid gastric juice present, & so there

is less of the remedy converted into the acid chlorides. In this way the peculiarities of most remedies, & the relations they bear to the system in part or in whole, & as a theory deserves consideration. To me it appears plausible, & I hope that future research & investigations will throw more light upon the subject than we at present possess.

Remedial agents are employed either rationally, or empirically: that is, either to control the various causes & phenomena of disease by producing effects in accordance with known laws, or on account of some specific relations existing between the remedy & the morbid manifestations present. This specific action is perhaps not very intelligible, but the most rational explanation that has yet been offered appears to me to be that the agent so employed, sets up a condition of system incompati-

ble with the existence of the disease at the same time, thus contemplating one series of abnormal symptoms with their causes, by substituting another less detrimental, which relieving itself spontaneously leaves the system in a healthy condition. Hence medicines are often employed to fulfil both their general & specific relations.

We have said that medical agents are all, in general terms, either Stimulants or Sedatives; but for the sake of convenience & in order more particularly to designate their mode & organ of manifestation, they have been subdivided in such a way as to give us more definite ideas of their several peculiarities. The most important of these subdivisions is believed to be the class of Cathartics.

Cathartics act by stimulating

the intestinal canal, or certain parts of it; producing alvine evacuations. Thus producing a sedative effect. — Some excite a serous secretion from the blood, & are termed hydragogues; others simply evacuate by increasing the peristaltic action, & are known as laxatives; some act upon one portion of the canal, & some upon another. By their depleting effects they are indicated whenever there is an excited or inflammatory condition of the system, to control vascular action, reduce the temperature of the body, & prepare the system for the administration & legitimate operation of such other remedies as the nature of the disease may demand. Caution should, however, always be observed in their continued use, lest by local stimulation or irritation, inflammation of the pri-

ma via or any part of it, be excited.
It has been proved that absorption is accelerated in proportion as the quantity of fluid circulating in the vessels is diminished; & as there is a constant effort on the part of Nature to preserve the regular proportion of serum in the blood, the exhibition of hydragogue cathartics in the treatment of Dropsy is indicated; for as by their use depletion from the circulatory system is effected, the effused serum is absorbed & conveyed in the general current of the circulation. Cathartics, by irritating the alimentary canal, produce a derivative effect from the superior to the inferior parts of the body; hence their use in cerebral diseases. In the sanguineous fevers they are also useful as derivatives, by determining the circulation from the cutaneous to the intes-

tinal capillaries, & thus reducing the tem-
perature of the surfaces. Cathartics
are particularly indicated in the treatment
of Dysentery or in any affection where an in-
flamed condition of the intestines exists,
by clearing the canal of irritating substan-
ces & the vitiated secretions constantly pro-
duced. In peritonitis, acute rheumatism,
hydrocephalus, & all diseases depending
upon gastric or intestinal irritations, unless
it should be deemed advisable not to dis-
turb the alimentary canal, cathartics,
in virtue of their antiphlogistic effects,
are decidedly useful. In pneumonia
they are less useful, except only to keep
the bowels in a soluble condition. In
nervous diseases, hypochondriasis, hys-
teria, &c., they are useful to remove the
impacted faeces which are generally
found in consequence of the characte-
istic torpor of the bowels.

Another class of medicines, scarcely less useful than those we have just been considering, are Emetics.

Emetics, according to the general definition, are medicines which excite vomiting, independent of any nauseous taste, or the mere quantity introduced into the stomach. The precise mechanism of the effects of an emetic is perhaps not well understood, though it has been proved by experiment that the act of vomiting depends upon the integrity of the pneumogastric or eighth pair of nerves. We may in general terms say that an impression is made upon the sentient extremities of the nerves distributed to the mucous membrane of the stomach, which is referred to the sensorium. This diminishing the peculiar energies of the brain, the necessary stimulus is not furnished to the stomach. The organ, losing its

tonicity, has its action suspended or reversed, & nausea & vomiting take place, the contents being expelled through the sympathetic intervention of the diaphragm & abdominal muscles.

Emetics are particularly useful to expel from, or clear the stomach of irritant or poisonous matter; & in order to facilitate their absorption & more prompt action, should be given in a fluid or liquid state. Unlike other remedies, the effects of emetics upon the system are increased in proportion to the frequency of their repetition, & hence the tone of the stomach is necessarily impaired if they be long continued. There are also certain other precautions which should be observed in the exhibition of this class of remedies: & first, that their operation is dangerous where there is determination of blood to the brain, Especially in plethoric habits; in cer-

tain visceral inflammations; in pregnancy; in hernia; prolapsus, or wherever there exists extreme general debility. As the operation of emetics depends upon reflex nervous action, a debilitated condition of this part of the organization, will, of course, prevent their due effects. Among the mechanical uses of emetics may be mentioned its action on the gall-bladder, whereby so pressing & disturbing it, & the parts in relation to it, a more copious flow of bile into the duodenum is produced. Illustrative of this is the fact that in Cholera we find no bile until after vomiting has continued for sometime. By this action they give an impulse to the portal system. The nervous system is influenced by this general shock, & hence emetics are useful in the first or incipient stages of fever, when the excitement is principally confined to this part of the system. Vomiting, by relaxing the

tem, & diminishing the force of the circu-
lation, promotes absorption of fluids whether
effused or in abnormal conditions, proves
the utility of these medicines in Dropsy. In
intermittents & exanthemata they are common-
ly employed. & are useful by relieving the sys-
tem of the internal congestion which invaria-
bly attends these diseases. In dyspnoea,
croup, & other thoracic affections they
are almost indispensable, their action be-
ing partly mechanical, that is, pressure
of the diaphragm & intercostals upon the tho-
racic viscera, but more particularly, as it ap-
pears to me, by relaxing the parts concerned
in secretion & excretion; & the two actions
thus combined favoring the throwing off
& expulsion of matters injurious and
offensive in their relations with the air-
passages. They are often of essential service
in delirium tremens, hysteria, epilepsy, &
perhaps in the early stages of dyspepsia

Unless it is desirable to procure prompt action, the exhibition of the remedy in divided doses, with preceding vomiting by a period of nausea, is often beneficial; neither is directed vomiting in all cases essential. It may here also be added that immediately after the full operation of an emetic, irritating aliments, or cold water, should be avoided, as convulsions, & even death have resulted from these causes.

Distinct from Stimulants in the general & full sense of the term, there is a class of remedies in our subdivision bearing the name of Stimulants. These are medicines which increase the vital forces of the body, or of an organ or tissue, & so enable the part acted upon by disease to withstand the morbid & poisonous influences which would otherwise inevitably prove destructive. There are several varieties of stimulants, viz: the arterial, the nervous, & the general diffusible stimulants. Each of these is to be

applied in accordance with certain Physiological & Pathological laws, & with due regard to their individual & Specific relations. In the use of Stimulants it should always be borne in mind that there is a tendency on the part of the functions to become assimilated to the action of the remedies, & that these therefore should be frequently changed, or variously combined in order to secure their continued good effects. Tonics, another variety of stimulants, are peculiar, inasmuch as their effects are more slowly produced, of a less energetic character, but of longer & more permanent duration; besides possessing the characteristic properties of anti-periodicity. The principal diseases in which these remedies are employed are those in which the system is in a depressed or sinking condition, & requires support; where a membrane or organ requires its vital powers excited to enable it to alter a dis-

vascular action; - in neuralgic, spasmodic, or anemic conditions, always bearing in mind that their exhibition is contraindicated by the existence of vascular excitement, or cerebral determination.

As the direct counterpart to the class just considered, we have that of Sedatives. Like stimulants, they act through the cerebro spinal system, lessening the force of the heart, diminishing the grade of arterial action, & so modifying the vital forces of the system that no part of the body shall be called upon to perform more than its normal functional activity. Hence it will be seen that they are applicable in the various febrile affections & inflammatory conditions which are either essential to, or manifest themselves in the course of certain diseases. Those of the class that act rather promptly, are always followed by reaction, (unless when the remedy is carried to too great an extent,) in

order to guard against injurious consequences from this cause, it may often be necessary to repeat the remedy.

Partaking of the nature of both stimulants & sedatives, we find the class of narcotics. — The primary action of narcotics is first to stimulate & then depress. In small doses the depression is not very appreciable; in large doses the stimulation is almost immediately succeeded by the secondary effect; & in all cases the interval from the commencement of the first to the commencement of the second effect is proportionate to the extent of the dose. The secondary, which is the legitimate effect of narcotics, is characterized by a diminution of the powers of vitality, torpor, insensibility & sleep. They are applicable in almost all diseases in some stages of their course, but are particularly useful to allay pain, calm nervous irritability, &

Counteract spasm. Their action being on the nervous system, through the sensorium commune, they are contraindicated in case of active congestion, or determination to the brain. These, more than any other medicines, lose by repetition, their action on the system; therefore where it is necessary to continue their use for some time, the dose must be gradually increased.

There are yet remaining various other subdivisions which manifest their effects through certain of the tissues or emunctories of the animal economy; but as these are either modifications of those already mentioned, or assume their peculiarities from accompanying circumstances, they will be simply noticed. They are Diaphoretics, Refrigerants, Diuretics, Expectorants, Emmenagogues, Sialagogues, Errhines, & Antacids.

As topical applications we have Epispastics, Rubefacients, & Escharotics.

Anthelmintics are said to possess a specific poisonous effect in relation to worms, which destroys their vitality, & aids in expelling them from the system. Sometimes we also find noticed, what have been called Eccolics, or those remedies which exert a specific action upon the contractility of the uterus.

All these remedies come into play in the course of some one or other of the various diseases where their characteristic effects may be desired, either to relieve symptoms, or to modify the abnormal functional action upon which the morbid condition may depend.

Having thus hastily reviewed the modus operandi of medicines, & the general therapeutical means resorted to for the mitigation & eradication of disease, let us notice for a moment, that greatest of all remedial agencies, which often operates so successfully when all human

appliances fail, & scientific skill proves abortive. In this power whose preservative & reparative energies pervade the entire range of vitalized existence, & whose protecting care extends equally from the complicated organism of man to the simple structure of the transient Ephemera, we recognize the conservative force of life, the great "Vis medicatrix naturae." Operating in direct harmony with the constitution of man, & with the relation of the various functions to one another, the most important & useful lessons of our art are to be learned by carefully watching her efforts, observing the indications she is about to fulfil, & endeavoring to ascertain the rationale of her conduct. Whenever her mode of action is clearly understood, it is our duty, not to interfere, but simply to assist, if necessary, in overcoming the morbid tendencies which may be successfully opposing the recuperative efforts of Nature.

Nature cannot be Enthroned by Art,
Nor Disease ever be brought in subjection to Sciences alone; & as the true Physician constantly refers to the great book of Nature for instruction in his high Profession, he must always look to the "Vis Medicatrix Naturae" as the "Alma Mater" of Medicine, & himself as her most humble Devotee.

AN

INAUGURAL ESSAY

ON

MENSTRUATION,

Submitted to the examination

of the

PROFESSORS REGENTS,

and

FACULTY OF PHYSIC,

of the

UNIVERSITY OF MARYLAND,

for the degree of

Doctor of Medicine,

BY

EZRA WEIS.

OF

Maryland.

1851.

The function of menstruation is one of the peculiar characteristics of the female sex of the human species. Remarkable in its causes, in the great physical and moral changes that precede and accompany its establishment – in the periodicity of its exercise – for the intimate sympathy with another physiological characteristic of the female economy, conception – and the relative dependence of the integrity of the latter upon the regular and healthful accessions of the former, and, remarkable, finally, for the sterile and barren condition of the sex when, having fulfilled the object of its appointment and place, menstruation ceases its office, it is not a matter of wonder that it has served in turn to elicit much diversity of opinion and to fill numberless pages of harsh and inconclusive controversy, and also to awaken admiration of the wisdom of the Great Author of life and all its complex, though regular and beautiful functions.

At the period of puberty a sanguinolent fluid is eliminated by the uterus and escapes from the vagina every month: this fluid is termed the catamenia or menses. By some, this fluid was, for a time, thought to proceed from the vagina, but the erroneousness of such opinion is manifest from several considerations. During pregnancy, although the vagina (so far as any power of secreting or eliminating it may possess when the uterus is unimpregnated is concerned) remains intact, the menstrual fluid is nevertheless suspended: and, again, in amennorrhea, emansio mensium, depending upon closure of the canal of the cervix uteri, or an impervious os, the catamenia are retained in the cavity of the uterus and sometimes by overdistension cause the parietes of the organ to yield, the vagina, meanwhile, not implicated in the organic irregularities referred to, failing to give the slightest evidence of participation in the function we are considering.- The error is rendered still more evident by the

observations of those who have witnessed the monthly flow issuing, guttatim from the extincrae in a relapse of the uterus and who also in post mortem examinations have found the menstrual fluid adhering to the inner membrane of the organ.

The nature and properties of the menstrual fluid have from the earliest antiquity been alike subjects of disputation and objects of popular prejudice and scientific error the absurdity of which can scarcely be conceived. Aristotle believed it blood as pure as that proceeding from any wound: Hypocrates taught that it differed not with the blood of the "sacrificial victim": Pliny regarded it as a fatal poison, and says that "it corrupts and decomposes wine, deprives seeds of their fecundity, destroys insects, that it blasts the garden flowers and grasses and causes fruits to fall from their branches". The Mosaic dispensation decreed that "if a man shall lie with a woman having her sickness, and shall uncover her nakedness, he hath discovered her fountain, and

she hath uncovered the fountain of her blood, and both of them shall be cut off from among their people." The law relating to ceremonial uncleanness as set forth in the book of Leviticus, provides that "if a woman have an issue and her issue in her flesh be blood, she shall be put apart seven days: and whosoever toucheth her shall be unclean until even. And if any man lie with her at all, and her flowers be upon him, he shall be unclean seven days: and all the bed whereon he lieth shall be unclean." In Ezekiel all wicked courses are compared to the uncleanness of a removed woman - (C. 36, V. 17) and in allusion to this it is said of Jerusalem (Lam. C. 1, V. 9) "her filthiness is in her skirts", so that (as it follows V. 17) she was shunned as a menstruous woman. Harsh views and prejudices derived from the foregoing sources led to the adoption and establishment of cruel and barbarous customs at various times in the history of the more refined and civilized nations as well as among the illiterate and savage. The council of Nice, failing ap-

presently to distinguish between the law of ceremonies and the law of morals, or between the mutability of the former and the immutability of the latter, and resting their action on what they assumed as a precedent for the future government of the Church, passed a formal decree forbidding women to enter the Church while menstruating. The South Sea Islanders, and certain tribes of the Aborigines of our western world, condemn their women to a state of absolute sequestration during the whole menstrual period: and, it is said, that several of the tribes punish with death their women who fail to give notice of their being affected with their periodical flux. "It appears" says a learned and elegant writer, "that the male feeling himself more at liberty during this transitory crisis, in which the charms of the female are somewhat obscured by a slight shade, would profit by the intermission this left him, in order to revolt and outrage her, whom, in all other circumstances he is compelled to adore."

The progress of scientific investigation has, however,

at this day, left few opponents to the opinion of Hypocrates, and of these few the views have been so far modified as to discard the ignorance and superstition of the past and to secure the female from the barbarisms and humiliating precautions these features of a former day entailed. Though by a few now esteemed a proper secretion of the lining membrane of the uterus and not blood mechanically filtered through it, and by an equal number as consisting normally of blood deprived of its fibrin the fluid consisting of serum in which the red corpuscles are suspended and readily distinguishable from blood by its want of power to clot, the menstrual fluid is, nevertheless, regarded by the great majority of the medical profession as similar if not identical with the systemic blood until mingled with the secretions of the cervix uteri and vagina, the acid of which, acting as a solvent to the coagulating part of it, retains the blood in a fluid state. The chemical analysis, by Dr. Letheby, and others, of menstrual blood collected free from admixture

with the secretions referred to, and the microscopical investigations of Donné, demonstrate that the menstrua possess all and none other than the properties of pure blood, and this conclusion is sustained by Madame Boivin and others well qualified as authority on the subject.

Whence, then, does the menstrual blood come? is a question the determination of which involves, we conceive, much practical interest. Is it, as some have supposed the result of a simple exudation from the arterial capillaries, or a simple transudation through the attenuated vein-walls, determined by the local plethora excited by the periodical maturation of the ova? Though not prepared to negative these suppositions absolutely, we strongly incline to a different theory. We venture altogether to objects to the term secretion as applied to the menstrual fluid, because the advocates of a "secretion" have never yet shown us where and what is the secreting structure. The uterine glands have obviously nothing to do with

it, and anatomy and physiology have thus far failed to exhibit any other structure in the mucous membrane of the uterus from which such a "secretion" can be embodied. Careful examinations of the inner surface of the uterus in women who have died menstruating seem to us fully to indicate the source of the flow. These examinations have been conducted by close and judicious observers, who tell us that beyond dispute the veins open on the surface of the womb and that the blood proceeds from them:- that if the womb, when laid open be subjected to a gentle amount of pressure, the small veins become visibly filled and the blood issues from them first as so many scattered points of extravasation and subsequently as small trickling streams issuing from the patent orifices of the veins. The fact of the menstrua when taken from the uterus having all the chemical and microscopical elements of blood, and the sensible properties of venous rather than of arterial blood seems an obvious confirmation of this view. It is these veins, we conceive, so small

when giving out the menstrual flux which become more and more open as the womb increases during gestation, some of which are covered by the placenta and supply that prolongation of the venous tissue which forms the containing structure of the mother's blood in the placenta, whilst others not engaged in this office can be traced with their orifices surrounded and guarded by the superficial layers of muscular fibres and their blood prevented from escaping by the uterine decidua. Separation of the placenta or a loose state of the decidua, apart from the proper contraction of the uterine fibres, determines hemmorrhage from the open orifices of these veins. The fluid of the "lochia", which some, too, regard as a secretion, is truly a flux of blood from the contracted mouths of these veins, which are additionally secured during the flow of the "cleansings" by firm clots within them. From these considerations we infer the source of the menses to be the venous structure of the uterus

Let us now proceed to consider the age or time of life at which the function of menstruation is established. Puberty, or the commencing aptitude for procreation, in the female, may be said to exist in the general between the thirteenth and sixteenth years, and its presence is defined by the menstrual effort, though from some elaborate and interesting papers recently published, especially those by Mr Roberton of Manchester, it would seem that the natural period of puberty in women occurs in a much more extended range of ages and is much more equally extended through that range than others have alleged. Many physiologists have stated, and their statement is the expression of a common opinion, that women reach maturity and that menstruation commences earlier in hot climates than in those embraced in temperate and colder latitudes, and that in this respect animals resemble plants. This difference in the time of life when the menses appear has been assigned by Hume (the historian)

as the reason why women in hot climates are almost universally treated as slaves. He says: "In hot climates, women are in the prime of their beauty when they are children in understanding; and when this is matured they are no longer objects of love. In temperate climates, their persons and their minds acquire perfection at, or nearly at the same time, and the united power of their beauty and their faculties is supposed to be irresistible." The influence of civilization is most manifestly overlooked by the astute historian, else none should be more chivalrous and gallant in devotion to woman than the male barbarians in climes of unmelting snow. This precocious menstruation, however, has been controverted as a "vulgar error" in the papers before referred to, a careful consideration of which renders the opinion highly probable that the negress of Southern Africa does not arrive at maturity earlier than her more favored and, in some respects, more unfortunate sis-

ter of a more temperate latitude, all things, save climate, being equal. Observations in the history of the Indian girls of Brazil and our northwestern frontiers are not without proofs of this "influence", as in them menstruation is frequent at twelve, thirteen and fourteen years of age. The same may be said also of the northern tribes of Asia in which, according to Humboldt, girls at the early age of ten years not unfrequently conceive and become mothers: and Dr. Lee assures us that over the wholes of Russia the period of puberty is the same as in Great Britain. Peculiarity of constitution doubtless may hasten or retard the establishment of the menstrual function; so, also, civilization, with its hot and crowded rooms, luxurious habits, elegant excesses, defective education, improper mental and bodily indulgences, and early excited passions, may serve to promote an early development of the sexual power.

The phenomena which precede and accompany

the establishment of the active stage of the reproductive faculty of the female, physical and moral, are of the highest order of interest. For a very considerable period before puberty, evidences of the approaching change in the system may be detected, indicating the change from childhood to adolescence. The pursuits of childhood, its games, the pleasures, unrestrained gaiety, largest freedom of action, mobility of tastes and affections, and, above all, its thorough exemption from cares, troubles and the impress of grave sentiments, gradually yield before the invisible and mysterious power of a secret instinct which gives to the young creature the presentiment of the important destiny that nature is calling her to fulfil, and new tastes, new enjoyments and more elevated inclinations and sentiments give rise to desires which as yet have no definite object, and yearnings after pleasures before unemployed. Timid, reserved and bashful, she seeks in solitude the em-

translation of a vague and dreamy ideality, that shall minister to the fulfillment of new-born hopes, and strives to analyze the first emotions of incipient love. Happily for her, the [illegible] that "to lean on earth" is but to lean upon a broken reed and she engages her faculties in solving the insoluble problem of the Cross, and now is admiring in the moral grandeur of a devoted heart. — The changes in her physical constitution are not less interesting and admirable. The reproductive organs which, until now, remained diminutive and quiescent, undergo a considerable change both as to developement and function, acquiring a degree of activity and an exalted sensibility before unknown. Becoming the centre of a periodical fluxion, the womb imparts an almost creative impulse to the whole economy, and nature seems now to perfect her work both as regards developement and proportion. The exercise of all the functions is marked by increased activity: the body ex-

bounds rapidly and soon the shades of difference in the sexes assume a definite tone and the peculiar distinctive characteristics become more and more defined as the development of each become more perfect. The eyes acquire intelligence and renewed brilliancy; the voice becomes soft and melodious: the neck and limbs increase in size and become symmetrical: the breast enlarge and swell with luscious fullness: the chest expands: the rudimentary conditions of the pelvis and sexual organs are exchanged for their just and full proportions, and the adipose deposite soon imparts an embonpoint to perfect and grace this period of the most perfect beauty of which the female is susceptible. In a word a new and superior being, almost, is created: and nature, through the exalted sensibility and activity of the sexual organs, now seeks to establish the most important physiological condition of this era of transformation — the menstrual evolution.

This is not accomplished however without its usual element of inconvenience and suffering to the female, suffering in intensity and duration in different subjects. In some, the first eruption takes place suddenly and without the slightest premonition, but in the large majority of cases it is preceded and accompanied, in a greater or less degree, by a sense of languor and lassitude, slight chills followed by febrile reaction, sensations of fullness and pain in the head, flushing of the face, dark areola under the eyes, disordered appetite, impaired digestion, nausea and vomiting, fullness, weight, pain and tension in the pelvic and lumbar regions, and occasionally swelling and throbbing in the mammary glands. These symptoms, all of which are not present in every case, may last, if without the exhibition of the menstrual discharge, to recur at the interval of a month with renewed intensity, to be followed perhaps by the discharge only of an inconsiderable quantity of

mucus. Subsequently, however, with each renewed recession of the menstrual effort, occurring at the menstrual intervals by proper diet, mild tonics and gentle exercise, the discharge assumes more and more the appearance of the proper catamenial fluid, and in a space of time, varying from four to six months, the function becomes regularly and healthfully established.

The interval which usually elapses between the recurring appearance of the catamenia is commonly about twenty-eight days, though this is by no means a fixed and universal law. In time, the menses appear at the shorter intervals of fifteen days, this frequent recurrence failing to impress upon the general constitution any perceptible and unusual disorder, but is, nevertheless, subject to be regarded as a deviation from functional integrity, owing perhaps to habits of life and, notably, constitutional, tending to passive hemmorrhage. In others, again, the flow

occurs every thirty-one days, and possessing the same general results observed to those in which it is exhibited at the expiration of each succeeding four weeks.

The duration of the discharge varies from three to six days, the average duration being about four days. During the first day it is slight in quantity, becomes profuse on the second, diminishes on the third and disappears entirely on the fourth day. The average of the quantity which is discharged, slowly, and gradually, is from four to six ounces, the extremes ranging from one ounce to fifteen or twenty ounces. From this irregularity in quantity we may deduce an important, practical precept: i.e.- always to regard the quantity relatively, and to institute no comparison of the quantity discharged at any given time with reference to the quantity usually lost by the same subject, each woman being subject to the operation of her own economic law.

During intero-gestation and the succeeding period of lactation, the evolution of the menstruation is suspended, the suspension furnishing one of the earliest indications of conception: yet cases are on record, in some of which after conception had manifestly occurred the flow continued to occur for several periods thereafter, while in others a discharge, supposed by some to differ with the true catamenia, occurred regularly at monthly intervals during the entire period of pregnancy, and in a third, and still more unusual class of cases, the menses only appeared after conception and continued to occur at proper periods up to the time of labor. If lactation be prolonged inordinately, nature, still regarding the great office of procreation as paramount, exalts the sensibility of the sexual organs, re-establishes the menstrual discharge, and thus indicates the conditions which favor renewed impregnation.

The average period during which the function of menstruation lasts is about thirty years of the life of woman, beginning at puberty and ending somewhere between the fortieth and fiftieth years of age, during which she is endowed with the reproductive faculty. From the first appearance of the menses, until, from the lapse of years, they cease, the health and freshness and beauty of the female depend much, as a general rule, on the regular return of this sanguine evacuation; and the changes in the animal economy which accompany the important period of the cessation of the menses are scarcely less striking than those we find associated with and marking the aurora of true womanhood.

The time of the cessation is liable to many variations, though as before suggested the usual period of the "time of life" is about the forty-fifth year. In some cases, it has been prolonged ten years or more, but few instances are on record in

which women have borne children after the fiftieth year; by others the average period has been anticipated and the functions of the uterus have ceased before or at the thirty-fifth year. These variations in the period of cessation are referable to corresponding differences in the time at which the subjects of the contrast commenced to menstruate, since it has been observed that those who have anticipated the latter have been equally premature in reaching the former, and vice versa. Having attained the average period, the discharges become scanty in quantity, irregular in their returns, and finally cease altogether, leaving the uterus in a condition no longer adequate to the performance of its function. The great object of woman's mission is at length fulfilled; the flowers of her constitution which garnished with beauty her early youth have one by one closed their delicate petals before the blasts of approaching age; the central power whence

her organisms derived their seduction from its first force: the resiliency of the muscular tissue, the embonpoint and beautiful contour of form and feature have gradually yielded place to the furrows of advancing time, and a disagreeable flaccidity has forever displaced the elastic firmness of a more attractive and inciting day.

Not least among the many fallacies which have obtained the popular consent is one which has served to clothe in sombre hues the "turn of life." Few of the sex have approached its confines without experiencing painful apprehension of evils to come more intolerable than the thousand infirmities that stud the pathway of woman from the cradle to the "crisis." Without desiring to conceal the impress of the last great, physiological revolution to which the sex is subjected, we protest utterly against all "peccant humors," "noxious fluids," "elixirs of life," "health restoratives," &c with all the theories of charlatans and quacks,

from which have mainly arisen the many fore-
bodings which too often harrass the mind and
fret the existence of woman as she approximates
the much dreaded termination of her aptitude
for conception. Her comfort demands that she
shall be re-assured on this subject, and be made
to learn that these doctrines of "peccant accumu-
lations," however excusable in the less enlight-
ened days of the past, are now but the too-thin-
ly veiled hypocrisies of the self-interested and ar-
rogant pretender: for if the menstrual blood
be formed of the general mass, and if that be
pure, the former must be, hence the absurd-
ity of these "noxious" theories; and that she is
not necessarily more obnoxious to disease at
this than any other period of her history, pro-
vided organic lesion, as scirrhus of uterus or
mammae, be absent. If latent dispositions to
organic disease become active at this period in
the life of woman, it is surely, not because the

declining menses exert a lethiferous influence over the organisms and thereby originate the circumstances necessary to their creation, development and progress, but rather because the salutary effects of the menstrual discharge, which served to relieve the engorged condition of the vessels and to prevent an undue affluxion of the general circulation to the seat of organic lesion, are now withdrawn from the system, and the morbid phigenesis, the foundation of which in many cases is doubtless laid at a time when the menses are most perfect in recurrence and quantity, no longer subject to the derivative influence of the catamenial discharge, becomes the centre of an increased capillary hyperaemia superadding to the activity of its development. Fully admitting the general and local disorders which some have deemed inseparable from the female crisis, the numerous researches that have been made as to mortal-

ity among women at this so-called critical period, prove that the danger is not greater for them than for the other sex at a corresponding age in life. With proper hygienic, precautions, judicious medical counsel and the utter rejection of the vaunted and patent nostrums of the day, the timid and fearful may hope to outlive the stormy prospect with a better chance secured thereafter of prolonged life than many men himself enjoys.

We have yet left for our consideration the causes of menstruation, of which the learned at different periods have been exceedingly and ingeniously prolific. Theories embracing "lunar influence", "excretions of noxious substances", "superfluous quantities of blood and consequent plethora", "mechanical action," "excess of carbon and azote in the blood of the womb," "hydrostatic pressure", "state of erection", "an amorous phlogosis" similar to the "heat" of the lower animals, were

advanced in turn and successively abandoned because unsatisfactory, until the new theory of menstruation by Negrier Gendrin, Lee, Raciborski, Goodwood and Ritchie, based on the most complete observations yet made on this subject, consigned them to the "tomb of the Capulets." Ovarian influence, before overlooked or denied by most writers in favor of the uterus as the sole organ involved in the process of menstruation, was soon demonstrated by Negrier and his cotemporaries, in researches made with great patience and care and extending from the minute anatomical structure of the ovaria of the new-born child through all the succeeding changes coincident with puberty, the reproductive age, and the period of the final cessation of the menses. Combining with the researches referred to the results and evidences (of which the books are full) adduced from post-mortem examinations of the genitalia of women who have died

while menstruating, the theory now generally accepted becomes firmly established, namely: that in menstruation the ovarian vesicle is burst with the loss of the ovula and granules- that the ovarian stroma and indusiums are highly injected and vascular- the assimilar condition exists in the tube and womb, and this is sufficiently established a hyperaemic status of the internal genitals to account for the entire local plethora or uterine hyperaemia whose result is the menstrual discharge; or in other words that the great physiological act consists in the regular, periodical development and discharge of the ovula, the flow of the menses being the evidence of the act.

The derivations and derangements to which the menstrual function is liable - dysmenorrhea, amenorrhea, and menorrhagia - being sufficient of themselves to furnish subject matter for a distinct essay, are therefore excluded from

notice in this already two published papers.

AN

INAUGURAL DISSERTATION

ON

ACUTE GASTRITIS,

submitted to the examination

OF THE

PROVOST, REGENTS,

AND

FACULTY OF PHYSIC,

OF THE

UNIVERSITY of MARYLAND.

FOR THE DEGREE OF

DOCTOR IN MEDICINE,

BY

JAMES BATES KEITH

OF

NORTH CAROLINA.

1851.

Oh! with what anxiety is the time looked
forward to, when the student is about to
launch his tiny bark, upon the tempestuous
sea of the Medical World, is known only
to him who has passed the ordeal. His
heart, now beating with hope, as his little
vessel glides o'er the watery plain, which
lies calm as an infant pillowed on its
rest on a fond mother's bosom, now trembles
with anxiety, as he beholds the black cloud
gathering o'er his head, - hears the deep-
voiced thunder, - sees the lightnings evan-
escent streaks of gold, - hears the wild-wind
dirge-like and yet tempest tone, which lashes
the billows of the broad expansive ocean,
into dreadful and tumultuous fury, which
tosses his little vessel to and fro, and knows
not at what moment he may sink into
its depths "without a grave, unknelled, - un-
-coffin'd", Such has been the situations of
thousands, How many have been lost!

Yet often will an unerring head and steady
arm have stood at the helm and guided
the vessel safely on, until they have seen
the clouds dispersed, the howlings of the
winds hushed, the angry waves stilled,
and have reached the haven, in which
they have cast their anchors, and then,

"How calm, how beautiful comes on
The stilly hour, when storms are gone;
When warring winds have died away,
And clouds beneath the glancing ray,
Melt off, and leave the land and sea,
Sleeping in bright tranquility,

Verberto, my heart has been beating with
hope, for naught but a smooth sea has
been before me, Now, it begins to tremble
with anxiety, for in the distance I see the
storm approaching. What is to be my fate?
Am I to be saved or lost? Time alone can
reveal it; But I am getting tedious, and
must commence my subject;

Acute Gastritis,

This term is employed to designate acute inflammation of the Mucous Membrane of the Stomach, though the inflammation may extend sometimes, to the other coats of that organ, as a purely idiopathic affection; this disease is rarely met with, though frequently found connected with other diseases. Few organs resist so firmly the ordinary direct causes of inflammation, as the Stomach, Fortunate it is, that such is the case, for if the Stomach were as liable to inflammation as some other organs of the body, being so constantly exposed, it could no longer carry on its functions with safety, every meal would

prove sufficiently stimulating to produce a gastritis, The Wisdom of Nature, has provided against such accidents, Broussais, states that 'Gastritis is never found except in conjunction with disease of the small intestine', Pathology however, proves that such is not the case, Andral gives many cases in which disease existed separately in one or other portions of the Alimentary Canal, When gastritis is lighted up in the course of other affections, the intestines, are very frequently affected with the Stomach, the patient presenting Symptoms of Enteritis as well as those of Gastritis,

Acute Gastritis, is most commonly produced by the

direct application of irritant poisons to the mucous membrane of the stomach, those vicissitudes of temperature which so often are the cause of inflammation in other portions of the body, readily produce this disease, Large draughts of cold water or cold sour liquors, as cider, or stale beer, taken when the body is heated, or perspiring, are mentioned among the causes, The ingestion of large quantities of food, at one time, especially during convalescence from any serious disorder, are very often productive of this disease, Certain poisons introduced into the body through some other channel, besides being directly applied to the stomach, will not unfrequently

produce gastritis, Corrosive sublimate and arsenic are included in this category. they will often light up the disease if rubbed into the skin or introduced into the Rectum, Severe burns and Scalds very frequently produce this disease, Severe cases occasionally result from the metastasis of Acute gout or rheumatism, The State of Convalescence from certain acute diseases and also the previous existence of Chronic Gastritis, are among the strongest predisposing Causes,

As has been previously stated, this disease is much more frequently found connected with other diseases, than as an idiopathic affection, Or it is very apt to occur in the course of Remittent & Yellow

Fevers also in the phlegmonous and exanthematous diseases,
In the advanced stages of Phthisis, it is sometimes apt to occur,
When Acute Gastritis, arises from any cause, the following Symptoms usually present themselves,
Intense pain, usually of a burning character, over the region of the Epigastrium, extending up the œsophagus, which is increased by pressure, sometimes it is so intense, that merely the weight of the bed-clothing gives rise to the most excruciating agony, The pain is also increased by the descent of the diaphragm, the breathing of the patient is consequently short and constrained, and purely thoracic, the patient using only the muscles of his thorax, instead of using his

abdominal and thoracic muscles together, The patient is troubled with incessant nausea and vomiting. He has also an ardent and unquenchable thirst, frequently calling for cold water, which if he drinks is almost immediately rejected by the stomach. There is great increase of heat over the region of the stomach, The stomach usually appears distended, Hiccough usually accompanies gastritis, sometimes coming on early in the disease, but generally it appears in the latter stages, when the patient is much debilitated, The bowels are most generally constipated, unless they should become involved, in which case, they would be looser than in the healthy state,

The urine, is generally scanty and high coloured, The pulse is frequent, at the very onset of the disease is sometimes full, but soon becomes small, thready, The patient is apt to be low spirited, and restless, his countenance indicating anxiety and distress, His extremities are cold and his skin hot and dry, We next come to consider the state of the Tongue in gastritis, it is usually described as being covered in the middle, with a whitish fur, leaving the tip and edges of it red, red papillæ are seen through the coating of fur, Are we to consider that there is anything characteristic in the condition of the tongue, that would indicate the presence of inflammation

of the Stomach? The schools of Broussais, state that we must, they say, that the tongue is an unerring index to the state of the digestive tube but Modern Pathology declares that that distinguished pathologist M. Andral, who has done a great deal towards the advancement of Medical Science, has made extensive investigations to ascertain the connection between the condition of the tongue and that of the Stomach, Hear what he says on this subject; He declares "that there is no constant relation between the state of the tongue and that of the Stomach", "There is no modification of the one corresponding with any special modification of the other", "The Stomach may be found in a certain state after death, with various conditions of the

tongue during life" and that "we may have a diseased stomach with a healthful condition of the tongue, and diseased appearance of the tongue with a healthful state of the stomach". These facts learn us that we should not place too much reliance on the appearance of the tongue - that we should not be too hasty in forming our diagnosis, simply from the appearances of that organ, and that we should look to the other symptoms that present themselves, as being more pathognomonic of gastritis, Should a person of nervous habits get inflammation of the stomach, he will be very apt to have some sympathetic affections of some part of the nervous system, his head is generally affected,

he complains of headache,
[illegible] about and can [illegible] to
sleep. Yet he has no actual
disease of the brain, this is
particularly the case with chil-
dren, when suffering from gastritis
they are troubled with headache,
delirium and intolerance of light.
This should be borne in mind
by the practitioner, for it frequently
happens that such is the case,
which is very often relieved by
the application of leeches to the
Epigastrium, it has been stated,
that there is no actual disease
of the brain when a person
is so affected, but should
this continue for some time,
the patient will get inflamation
lighted up in that organ or
its membranes, Should the

person laboring under gastritis, have his lungs in an unsound condition, the irritation will be very apt to be transferred to the respiratory apparatus, The patient's breathing being hurried and laborious, he is troubled with a hard laryngeal cough, sometimes occurring in paroxysms, sometimes constant, usually dry at first, but as the disease progresses, there is more or less expectoration, These sympathetic irritations are at first only functional, but should they continue for some time may become organic Cases of this sympathetic irritation are met with very commonly in Children, and are frequently met with in adults,

Such are the symptoms that usually indicate the existence of acute gastritis, but they may occur in varying combinations, and with different degrees of severity, and are not uniformly the same in all cases. In mild cases of the disease, the symptoms mentioned above are experienced in a milder degree. Sometimes instead of severe pain, a mere feeling of oppression or weight is felt, instead of the obstinate vomiting, there is merely a slight nausea. The pulse is generally in the milder forms of the disease, more full and developed. The tenderness in the Epigastric region, is very seldom absent. When the disease takes a favorable turn, the pain and vomiting

usually abate, the pulse becomes slower and fuller the tongue paler and moister, the skin cooler and softer with a general moisture over the surface, and relaxation of the bowels. But should it proceed unfavourably, the tongue becomes red, smooth and dry, occasionally covered with a peculiar exudation, the pulse exceedingly frequent, feeble and thready, the patient is greatly debilitated, delirium frequently occurs, a black matter which looks something like Coffee grounds, is sometimes ejected by the stomach, The patient has a troublesome and harrassing hiccough, The tenderness of the Epigastrium diminishes, and sometimes complete suspension of the pain, the patients

countenance is extremely anxious and haggard; and death closes the scene. When there is complete suspension of the pain without a change for the better in the other symptoms, it is an unfavorable sign. Occasionally, in the latter stages, the pain suddenly increases and becomes more widely extended, extreme tenderness is felt over the whole abdomen, which swells and becomes tympanitic, in such cases, we have reason to think that the stomach has been perforated, and the fluids that have escaped through the opening, have given rise to inflammation of the peritoneum. When this occurs death is the almost inevitable

consequence, The duration of acute gastritis, is variable, In violent cases, such as are produced by the Corrosive poisons, death sometimes takes place in less than twenty four hours, in other cases, the disease may run on from two to six weeks, and then if it does not terminate fatally, ends in a more slow convalescence or gradually subsides into a chronic form of the disease, Mild cases often terminate speedily; if properly attended to, if not may run on for weeks, and at last subside into the Chronic form, Where we examine the stomach of a patient who has died of Acute Gastritis, we usually find it more or less

contracted sometimes so much as scarcely to exceed the natural size. The mucous membrane, is sometimes much wrinkled and presents the usual signs of inflammation. The colour is generally bright red, livid red, or blackish, sometimes diffused over the whole surface, sometimes confined to only a portion of it. The redness is occasionally uniform, sometimes appearing in patches, or stripes occasionally stellated, or arborescent. The darker shades of colour are rarely found, except in cases produced by the corrosive poisons. The mucous follicles are usually reddened and appear more prominent than in a state of health,

Ecchymosis is very frequently found sometimes in patches sometimes in spots, producing small eminences on the mucous surface. It should be borne in mind that mere redness is no evidence that inflammation had previously existed. Experiments made by able investigators have satisfactorily proved that stomachs in a previously healthy state often appeared much reddened after death, and that redness may result from a condition wholly independent of inflammation. It may result from irritation, or from mere healthy excitement, or by congestion of the portal circle, or from most any cause which prevents the

return of blood from the stomach, or it may result from the force of gravity, which causes the blood to sink into the most dependent portions of the stomach, Would be well therefore, to examine, when redness is seen, and ascertain whether it is produced by the above-mentioned causes, before pronouncing that inflammation had existed, The mucous membranes of the stomachs of very young subjects is generally of a rosy hue, this may be mistaken for inflammation, Another appearance presented by the stomach is Softening, The discoloured portion of the stomach, is usually thickened, and more or less softened,

and is more easily torn than
in a healthy state (sometimes
it is reduced to a mere pulp.
(This softening should not be
too much relied upon, as it
may be produced post mortem
change, resulting from the
action of the gastric juice
on the mucous membrane of
the stomach, or it may be
also produced by incipient
putrefaction that may be going
on. Eschars, are sometimes seen
in various stages of advancement,
Ulcers are rarely found, except
those cases which result from
poisoning; Should the Phy-
sician be called to see a patient
labouring under acute gastritis,
which has been caused by some
irritant poison, taken into

the stomach, his first duty would be to remove it, if it had not already been done, either by the use of copious draughts of warm water, Mustard, Ipecacuanha, Sulphate of Zinc, Sulphate of Copper, or by the use of the Stomach pump; Substances which act as antidotes to the poison should also be administered, It may sometimes be necessary to bleed from the arm, if called to a case early, but as a general rule, patients labouring under Acute Gastritis, bear depletion rather badly — Should the Physician conclude to bleed his patient, he should consider well the Strength, age, and pulse of the patient,

A more important and far

less dangerous remedy, is local bleeding either by cupping or leeches applied over the region of the Epigastrium. Leeches are preferable to cups, in consequence of the aggravation of the pain, which the cups produce by their pressure. The amount of blood to be taken in this way varies, sometimes requiring more, sometimes less, according to the nature of the case. Light fomentations, taking care that they shall not be so heavy as to be oppressive, should be applied over the leech-bites. Care must be taken however, that they do not cause too copious a flow of blood from the bites. The patient should be kept in the horizontal position, as quiet

and tranquil as possible, Cold
applications to the Epigastrium
sometimes produce a happy effect,
Sometimes warm applications,
are more grateful to the patient,
his feelings should be consulted
as to the use of either of them,
Sometimes he will prefer one,
sometimes the other, The patient
should be allowed to drink freely
of cold water, the colder the
better, Care must be taken that
he does not drink so much
as to distend his stomach and
thereby increase the pain,
The swallowing of small pieces
of ice, is very grateful to
the patient, and is one of the
best remedies that can be given
for the purpose of subduing
the inflammation, Demulcents

consisting of Gum Arabic or some other mucilaginous substance made cold by ice, should be administered to the patient in small quantities and frequently repeated. Ice Lemonade, is frequently found to be very grateful to the patient. If the bowels are generally constipated, cathartics would appear to be indicated, but they are very apt to be rejected by the stomach, and even if they were retained, they would be very apt to aggravate the inflammation, if used at all. They should be given very sparingly, Calomel, is probably the least irritating cathartic we possess, and if any is given that should be used, Sometimes it is retained, when even cold

water is rejected by the stomach, should it be retained, it proves serviceable by unloading the portal veins thereby diminishing congestion of the stomach. Enemata of Flaxseed tea are very useful, and should be used to open the bowels, in preference to cathartics, Stimulating pediluvia, for the purpose of exciting action in the lower extremities, when they are pale and cold, should be employed, Anodynes and sedatives should be used according to the judgement of the practitioner., Hydrocyanic Acid given in the dose of half a drop, or one drop, is one of the best sedatives that we possess, On the latter stages, when the

Symptoms indicate the threatening, or existence of gangrene, Oil of Turpentine, is one of the most efficacious remedies, it should be administered with Tincture of Opium, or one of the salts of Morphia;
Blisters are rather hurtful in Acute Gastritis, if used at all, they should only be, in the latter stages of the disease, Should a Mercurial impression be desired, they should be dressed with Mercurial Ointment;
A very important thing to attend to is the patients diet, this, at first is inadmissable, should any be given, it should consist of Solution of Gum Arabic, or a little weak barley water or some such light mucilaginous

or farinaceous drink. In the
latter stages, when an absolute
necessity exists for nourishment,
a little fresh milk with lime
water, weak Chicken broth, plain
cream or ice-cream, may be cau-
= tiously allowed. During convales-
= cence from an attack of acute
Gastritis, great caution should
be observed by the patient, in
his eating, as nothing would be
more likely to occasion a relapse.
The practitioner often meets
with cases, which require some
modification of the plan of treat-
= ment mentioned above, what those
modifications may be, he must
rely upon his own judgement
and Clinical experience, to
point out to them.

J. W. Keith,

An
Inaugural Dissertation
on the
Anatomy Chemistry & Physiology
of
Digestion;
Submitted to the Examination
of the
Provost Regents & Faculty
of the
University of Maryland
for the Degree
of
Doctor of Medicine
By
Henry P. C. Wilson
of
Virginia.
1851

Digestion

In turning my mind upon the field of medical science, & scrutinizing the different departments, branches & subjects which are comprised in the same; there is none by which my thoughts are more prominently arrested as a theme befitting my consideration than that which embraces the normal exercise of those functions, by which the system is supplied with nutriment:— I mean Digestion.

This is a subject which invites the attention of all classes of men. To the unprofessional it urges its claims, as being the embodiment of that assemblage of processes, by which food ingested, is so acted upon, as to be prepared for the reparation of that waste constantly going on in the system, besides furnishing additional materials

for increasing our attention to [illegible] the digestion.
the study to the physician, then, why is it and
what food should be eaten. Dyspepsia which is, so long the
bait, or knowledge in testing it and subjects which
if more attended to, would much abridge the
number of ills that now afflict the human
family. Dyspepsia might then be blotted out
from the vocabulary of diseases, & its multitude
of attendant symptoms, if not among the things
unknown, would be among those most rare.

In addition to the reasons above mentioned,
there are others why the study of the process of
digestion is especially demanded of the pro-
fessional. It is only by a thorough acquain-
tance with normal digestion that we are able
perfectly to comprehend & treat abnormal
digestion, or Dyspepsia, than which there is no
disease more trying to the patient, or per-
plexing to the physician; and there are no ques-
tions which the physician is called on oftener to
answer than:- is this or that article of diet

healthy"?— "May I eat this or that thing?"— "how much, & how often may I take it"?— "what is the best course of diet for me to adopt in my case"? & if he is not found ready with an answer, or should advise anything, or in such quantity, that the patient suffer afterwards, confidence in him is immediately diminished if not destroyed. It is only through a knowledge of the mechanism of digestion (both anatomical & physiological & chemical) together with an acquaintance of the chemical analysis of food, that we are enabled to answer these questions philosophically,— with credit to our intelligence & profit to our pockets. It is for these among other reasons that I have selected Digestion as a subject worthy of my Thesis.

The term Digestion is derived from the two latin words di or dis (admodus) & gero (I bear), & literally signifies a minute division or separation of the particles which compose the mass of food. We are too much in the habit,

particularly the intestinal, of confining the word digestion to those changes in the food which take place in the stomach; but should we limit this term to such restrictions, & forget those changes which the food undergoes in the mouth & duodenum, we would be but illy prepared for a thorough consideration & due appreciation of what is included in our subject. The action of the gastric juice on the food in the stomach, would avail little, but for the previous changes which take place on it in the mouth, & the future changes on it in the duodenum. The latitude then in which we use the term, includes that assemblage of processes, by which the food, in its passage along the primae via is prepared for the ready absorption of all its nutrient ingredients.

With the word digestion is usually associated the idea of a process, in which is brought to work mechanical, chemical & vital forces;

& the existence of this latter force, necessarily presupposes a living, moving organism, through which to act. But on this one idea is laid too great stress. Digestion is essentially a mechanical & chemical process. Little dependent on vital forces; & can be performed almost as effectually in a retort, when all the proper conditions are brought to bear, as in the healthy human stomach. Yet from the difficulty of supplying all these conditions, & in the exact proportions, to the retort as is the stomach of the living being, Digestion cannot usually be accomplished with that rapidity & perfection in the former as in the latter. Nor is this statement the dictation of a fertile imagination, nor the offspring of a fruitful fancy. The profession has had an ocular demonstration of the fact, in the experiments made by Dr Beaumont on the Canadian who had a portion of his stomach shot away, & who thus furnished an opportunity to his phy-

sician, & witnessing the process of digestion going on in his stomach, while at the same time, with the gastric juice he obtained therefrom, he was enabled to carry on artificial digestion with similar food to that eaten by the Canadian; & if my memory does not sadly fail me; with a retort, gastric juice, heat, comminution, & agitation, digestion was accomplished almost as effectually & in not much greater space of time, than in that vital membranous retort in the human abdomen.

In tracing the process of digestion of the human being, we shall first treat of the parts concerned in this operation, & in noticing their action. In enumerating these parts, we have the mouth, with its appendages, teeth, tongue, & salivary glands; Pharynx, Oesophagus, Stomach & Small Intestine, — with the hepatic, pancreatic, juices, & Brunner's & other glands, pouring their secretions therein. The large Intestine is almost

exclusively a passage for the conveyance of effete matter left after the extraction of the nutritious ingredients of the food; together with various excretions derived from other sources, as well as the whole length of the prima via, into the same. In the exercise of the above organs is included the disposition of the food from the time that it is conveyed by the hands into the mouth (involving the act of prehension) till it is disposed of through the anus by the act of defecation.

The Mouth is a cavity situated in the lower part of the face; & is one in which is performed by no means the least important of those changes by which the food is prepared for the nutrition of the system. It is bounded in front, by the lips: which are composed of the orbicularis oris - a circular muscle which completely surrounds the rima of the mouth, - together with various minute muscles of the face (levators, depressors, & abductors of the mouth) where they join the orbicularis. These, as all the other muscular walls of this cav-

they are covered externally by skin, internally by mucous membrane: & contain within their substance numerous minute labial glands, fatty tissue, vessels & nerves. It is bounded laterally by the cheeks, which are made up of the buccinator or trumpeter's muscle, (from bucca) which arises from the alveolar process of the superior maxilla, from the external oblique line of the inferior maxillar, & from the pterygo-maxillary ligament. From these sources its fibers meet to intertwine with one another in the middle line between its upper & lower origins. This muscle is assisted by the muscles of expression, as well as the masseter, &c, minute buccal glands, vessels & nerves. It is bounded above by the hard palate, alveolar process & teeth of the upper jaw. The hard palate is composed of the palatine processes of the superior maxillary & palate bones. Upon these rest some muscular fibres, glandular bodies, & adipose tissue, all covered in by mucous membrane. It is

form the sides, with the two mylo-hyoid muscles one of which arises on either molar ridge of the lower jaw & meets its fellow of the opposite side in the middle line. This, like the other boundaries, is in part made up of fatty tissue & glandular bodies, covered within by mucous membrane. The mouth is bounded posteriorly by the soft palate & fauces. The soft palate is a fold of mucous membrane, containing palatal glands & muscles. It is situated at the posterior part of the mouth, & connected above with the posterior border of the hard palate. From the middle of its inferior border, hangs a small fleshy process - the Uvula; & extending outwards from the uvula on either side are the two palatine arches - called anterior & posterior. The anterior palatine arch of either side extends down to the root of the tongue & is composed of a fold of mucous membrane enclosing the palato-glossus muscle. The posterior palatine arches of either side is extended downwards & backwards to the pharynx,

& is made up of a fold of mucous membrane cover-
ing the palato-pharyngeus m[illegible]. Between the ante-
rior & posterior arches of either side lies the tonsil
gland. The space between the palatine arches of
both sides, & between the soft palate & root of the
tongue, is called the "Isthmus of the Fauces," &
is the orifice of communication between the
mouth & pharynx.

Within or connected with the mouth are sever-
al organs most important in their action to the
operation of Digestion. Among these is the Tongue
- a muscular organ, with its fibres running in all
directions. It is most bountifully supplied with
bloodvessels & nerves, & is enveloped in mucous
membrane. Its posterior extremity or root is connec-
ted to the hyoid bone by muscular fibres, & to the
epiglottis by three folds of mucous membrane, cal-
led the frena epiglottidis. It is connected later-
ally to the inferior maxilla by mucous membrane,
& in the median line to its tip in front, it is bound to the
lower jaw by a fold of mucous membrane, [illegible]-

lid the foramen linguae. Its nerves are of three sorts, which subserve three distinct functions, viz: Taste, Touch & Motion; and are derived from three distinct sources; from the Gustatory nerve, a branch of the inferior maxillary nerve, which is a branch of the trifacial or fifth pair of nerves; from the Glosso-pharyngeal, or one pair of the eighth pair of nerves; & from the Hypoglossal or ninth pair of nerves. The Gustatory is principally distributed to the mucous membrane of the upper surface of the tongue, & particularly to the papillae towards its tip. The Glosso-pharyngeal is principally distributed to the mucous membrane on the fauces & dorsum of the tongue, & sends a branch beneath the lateral margin on either side to the tip of the tongue, to meet its fellow of the opposite side. The Hypoglossal nerve is distributed to the muscular tissue proper of the tongue, & to the muscles connected therewith, which assist to move it. It has been a subject of debate whether each of these nerves has a peculiar function to perform,

& if so, what might be the especial functions of each.
According to the most approved authorities of the pres-
ent day, it is considered that the movements of the
tongue are accomplished by a force acting exclu-
sively through the Hypoglossal nerve, & that therefore
motion is its especial function; whereas the glosso-
pharyngeal & gustatory nerves, share the office
of conveying to the mind the sensations of taste
& touch. The most acute sensations of taste are
received & conducted by the gustatory nerve; but
the glosso-pharyngeal likewise performs a good
part in the exercise of this sensation; so that if
either of these nerves be severed, the sense of taste
will not be destroyed, although its acuteness will be
much diminished.

Of the Teeth - the instruments for the attrition
of food - very little need be said in reference to our pur-
pose. The teeth of the human being are divided into
deciduous, or those of childhood, & permanent or
those of the adult. The permanent teeth are thirty
two in number; - sixteen in either jaw. Of these

eight are incisors or cutting teeth; four are canine or cuspid; eight are bicuspid; & twelve are molar or grinding. They occur from before backward in the order in which they have been mentioned. One half of each kind of teeth is found in either jaw; & one half of each kind in either jaw, is to be found on either side of the middle line of the same jaw. Thus, there are 2 incisors, 1 canine, 2 bicuspid, & 3 molar teeth, in either lateral half of the upper jaw. The same for the lower jaw. Each tooth is divided into three parts - body, neck, & root: and each tooth is made up of three substances, - Dentine, Enamel, & Cementum. Dentine constitutes by far the greater part of every tooth, making up the mass of the body, neck, & root. Enamel is an intensely hard of pearl substance, covering the body & crown of the tooth in a thin layer. It is principally composed of phosphate of lime, with a very small proportion of carbonate of lime. It has also a trace of phosphate of magnesia & animal matter. In containing so large a proportion of phosphate of lime, is the chief difference between this, & other bones

tine; which is principally made up of the carbon-
ate of lime; and to that ingredient is due its grea-
ter density. Cementum is a thin layer of bony tissue
proper, which invests the root and neck of
the tooth. In infancy it also covers the enamel, but
as it is at that time quite soft, it is soon worn away.
Each tooth contains a cavity in its centre, which
is lined by a membrane, through which the many
vessels & nerves - the sources of nourishment & sen-
sation to the tooth. Of the deciduous teeth, or milk teeth,
there are but twenty; & the difference in num-
ber between the deciduous & permanent teeth, is
due to the absence of the twelve permanent molars
in the latter set. The teeth are maintained firmly
in bony sockets, by processes of bone arising from
the maxilla, & clasping the necks of the teeth; while
muscular fibres & mucous membrane bind
the teeth & their processes firmly together.

Connected with the mouth by secretory ducts are
three pairs of glands, called Salivary, whose se-
cretions are absolutely necessary in rendering

the food perfectly digestible. They are called Parotid Submaxillary & Sublingual Glands, one of each pair being situated on either side of the mouth.

The Parotid gland (the largest) is situated in front of the external ear, the greater part of it lying within the ramus of the lower jaw, & extending backwards in the mastoid recess of the temporal bone. Through its substance passes the external carotid artery, temporo-maxillary vein & facial nerve. Like other glands it is made up of [illegible] united with areolar tissue, to form lobules, & these lobules are again united to form lobes: & between these cells, lobules, & lobes, running minute tubes, which collect the secretion of the different cells, & by successive conjunctions, at length pour it into a single excretory duct, (as in this case Stenon's) or else pour it by several excretory ducts. Stenon's duct has its termination upon the inner side of the cheek, in a papilla opposite the second

molar tooth of the upper jaw.

The Submaxillary gland is situated in the posterior angle of the submaxillary triangle, which is the upper one of the three subdivisions of the great anterior angle of the neck. It is covered by the body of the inferior maxillary, & lies upon the hyo-glossus & mylo-hyoid muscles. Over or through it passes the facial artery. Its excretory duct (Whartons) terminates in the mouth on a papilla at the side of the frænum linguae.

The Sublingual glands are situated in the mouth one on either side of the fraenum linguae, & lie beneath the mucous membrane of the mouth. They are similar in structure & secretion to the other two pairs of salivary glands, but it differs from them in pouring out their secretion by several excretory ducts instead of one.

The secretion of the salivary glands is a fluid which much resembles water in all its chief characteristics. The proportion of solid matter which it contains is about two percent, & this includes both the animal &

saline constituents. The animal matter consists of osmazome, mucous, & a peculiar principle - called ptyaline, which is considered to be the active ingredient of the saliva. Its peculiar action on certain substances will be described hereafter. The saline ingredients of the saliva are, chlorides of sodium & potassium, tribasic phosphate of soda, & phosphate of lime, & magnesia & iron. It is to the phosphates, held together by animal matter, that the tartar collected on the teeth is due.

On passing from a consideration of the mouth, the next part in order concerned in the process of digestion, is that tract which conveys the food from the mouth to the stomach. It is a musculo membranous canal; made up of two distinct parts - pharynx & oesophagus; & extending from the base of the cranium to the cardiac orifice of the stomach. The upper part of this canal is formed by the Pharynx (φαρυξ the throat, & this from φαρω to split) which extends from the base of the skull, to a point opposite the fifth cervical vertebra behind, & the cricoid cartilage in front; where it joins the oesophagus. It is attached above by strong fascia to the basi-

-cilar process of the occipital bone, & to the petrous portion of the temporal bones; being deficient in front at this part for the entrance of several cavities. It is in front of the vertebral column, & behind the larynx. It is made up of mucous membrane, fibrous membrane, muscles; nerves, vessels & glands. The principal muscles which move it, are its three pairs of constrictors, - superior, middle & inferior; - although the stylo-pharyngeus & palato-pharyngeus, are also generally included in the muscles of the Pharynx. The Pharynx has seven openings into it - viz: the two posterior nares, the two Eustachian tubes, mouth, Larynx & Oesophagus. The principal arteries which supply it are the ascending pharyngeal. It is supplied with nerves by the pharyngeal plexus, which lies upon the middle constrictor.

The Oesophagus (from οιειν to carry, & φαγειν to eat,) is the continuation of the Pharynx, & extends from the lower border of the fifth cervical vertebra & cricoid cartilage, to the cardiac orifice of the stomach, which is about opposite to the ninth dorsal vertebra. It lies in front of the

vertebral column; passes behind the trachea, (but a little to the left of it) behind the arch of the aorta, through the posterior mediastinum, in front of the thoracic aorta, & through one of the three openings in the diaphragm to its destination. The Oesophagus is a musculo-membranous canal, with its muscular fibres arranged in two layers, — an external or longitudinal layer & an internal or circular layer. It is supplied with arteries by branches from the inferior thyroid; branches from the bronchiae; but chiefly by branches from the Aorta, called oesophageal arteries. It is furnished with nerves from the oesophageal plexus, which is formed by branches given off from the right pneumogastric ~~plexus~~ nerve as it courses along the back of the Oesophagus; & from the left, as it runs along the front of the same.

The Stomach (from Stomachus, & this from στομα a mouth, & χεω or χευω I pour out, because from its lower or pyloric end, the food is poured out into the small intestine) is a dilated continuation of that portion

of the alimentary canal of which we have treated. It is a musculo-membranous sac, situated in the upper part of the abdomen, within the epigastric & left hypochondriac regions. It has two surfaces, anterior & posterior. Two curvatures, a greater below, & a lesser above. Two ends a greater or splenic end to the left & a lesser or pyloric end to the right. And two orifices, cardiac & pyloric. The splenic end is much the larger of the two, & projects beyond the cardiac orifice, which is the termination of the lesser curvature to the left; whereas the pyloric orifice is in the centre of the lesser end. The stomach is contracted & then dilated just at the pylorus. This dilatation is called the antrum pylori. Its anterior surface looks upwards & forwards, & is in relation with the left lobe of the liver, the diaphragm, & abdominal walls. The posterior surface looks downwards & backwards, & is in relation with the diaphragm, pancreas, duodenum, left kidney, & left supra renal capsule. The splenic end is in relation with the splen, & the pyloric end with the liver. To the greater curvature is attached the

greater omentum, & to the lesser curvature, the lesser omentum. It is supplied with arteries from the coeliac axis, & branches of veins & nerves therefrom. Along its lesser curvature runs the gastric artery, (one of the three branches of the coeliac axis) & this is assisted in its work of supplying the lesser curvature, by the hepatic artery (a branch of the hepatic) The greater curvature is supplied by the gastro-epiploica dextra, & gastro epiploica sinistra arteries. (The former a branch of the gastro duodenalis: the latter, a branch of the splenic artery.) They supply their respective halves of the ~~stomach~~ greater curvature of the stomach, & anastomose in the middle. The greater end of the stomach, is also supplied with five or six small branches from the splenic artery, called vasa brevia. These vessels, named as supplying certain parts of the stomach, give off numerous branches, which ramify to every part of the organ. The stomach is supplied with nerves from the two pneumogastric, the sympathetic, & filaments from the spinal nerves which

accompany the Sympathetic. The structure of this organ is made up of Mucous Membrane, muscular fibres, nerves, vessels, a peritoneal investment & numerous glands. According to some anatomists the muscular fibres are arranged in three planes, & run in three different directions, — horizontally, transversely, & obliquely. The mucous Membrane is arranged in numerous folds, called rugæ. Should we make a section of the Mucous Membrane, & view it through a microscope, we would find it apparently made up of tubular follicles, which are the instruments for secreting the gastric juice. These follicles are sometimes single, but often collected into bundles, & held together by areolar tissue. These tubes are seated in the submucous tissue, & their orifices terminate in minute papillæ, not on the free surface of the Mucous Membrane, but in small pits or depressions (two or three in each) through which they pour the gastric juice into the Stomach.

Gastric juice is a pure, limpid, colourless,

large intestine

The small intestine is about twenty-five feet long & is included between the pylorus & the right iliac fossa. But in order that such a length of tube should be contained in so short a space, it must lie in numerous convolutions, & it is thus that the small intestine is packed away. These convolutions are maintained in situ by the mesentery, one border of which is attached along the whole length of the small intestine; & the other border, obliquely across the spine, from the left side of the second lumbar vertebra, to the right iliac fossa. These convolutions are encompassed laterally & above by the large intestine. In front of them hangs the greater omentum, — an apron like membrane whose use is a subject even yet but judiced. They occupy much, the greater part of the abdomen being more or less in contact with its parietes, in front, laterally, & behind, & extend partially into the pelvis. The small intestine is a musculo-membranous canal, being composed of mucous membrane, muscular fibres, numerous glands, vessels, nerves, & a peritoneal covering. The mucous membrane is differently arranged in different

parts of the canal. The muscular fibres are arranged in two layers, - an internal circular layer, & an external longitudinal layer. The intestinal canal (both large & small) is principally supplied with blood by the superior & inferior Mesenteric arteries, which is returned thence as venous blood by the portal vein. Its nerves are derived from the sympathetic system & spinal nerves.

The Small Intestine is divided into three parts, for description's sake; each of which has something peculiar to it. These are Duodenum, Jejunum and Ileum.

The Duodenum (from δωδεκα twelve, & δακτυλος a finger) is so called from its being in length about equal to twelve fingers' breadth. It extends, with a curvature to the right, from the Pylorus to the body of the second lumbar vertebra, where it terminates in the Jejunum. It is the shortest and most wide in addition to that of the whole small intestine. It first runs towards & backwards till it comes in contact with the liver & gall bladder; it then descends for a dis-

ularly in front of the right kidney; & lastly it passes transversely behind the stomach & across the first lumbar vertebra to terminate in the second. Its relations are sufficiently described in the above account, except to mention, that in the concavity formed by its curvatures, rests the head of the pancreas.
Into the duodenum is poured several secretions most important in rendering the food, after it has been acted upon by the stomach, fit for the action of the lacteals. The most important of these secretions is that of the liver - the Bile. But as I have already spent too much time on the minute anatomy of parts, I shall merely say of the liver, that it is the largest gland in the body, & is similar in its general characteristics to other glands. It is situated in the right hypochondriac region, upper part of the epigastric, & frequently extends over into the left hypochondriac region. Its secretion is conveyed into the duodenum by the ductus communis choledochus, which is formed by a union of the hepatic & cystic ducts. The cystic duct is

the duct of the gall bladder; which is a reservoir connected with the liver, in which the bile is stored when not wanted in the duodenum; & until it shall be called for.

Bile itself is a yellow liquid said to contain from 8 to 14 per cent of solid matter, of which about one tenth is made up of alkaline & earthy salts, and the greater part of the remainder is a substance very similar to fat in its properties, containing carbon & hydrogen largely, with very little oxygen & nitrogen, & combining with soda to form a soapy material. This substance is called by various names, viz: bilin, bilic acid, choleic acid, &c.; the soapy matter formed by its union with soda is the bilate or choleate of soda. Bile also contains a minute quantity of a substance called cholesterine, which is crystaline & somewhat resembles spermaceti, together with coloring matter.

The Pancreatic juice is another important secretion, poured into the duodenum, through

shining which is [illegible] [illegible]
[illegible] [illegible]
brought [illegible] nature to that of the
Pancreas & salivary glands.

The Jejunum (jejunus, empty) is named from being generally found empty. It comprises about the upper two fifths of the remaining small intestine, commencing with the duodenum and terminating with the ileum. Commencing in the duodenum & extending through the jejunum into the ileum, we find the mucous membrane arranged in circular folds, called valvulae conniventes. These folds do not complete the circuit of the tube, but are deficient on the posterior third. They are most numerous in the jejunum, & are not found in the beginning of the duodenum or termination of the ileum. Their use seems to be to retard the food in its passage along the canal, & at the same time to present a greater absorbing surface, & thus [illegible] better to extract the nutritious from the non-nutritious parts of the heterogeneous

small. The jejunum contains numerous distinct glands described, called solitary glands; the office & nature of which are entirely unknown [illegible] [illegible] of the system. These glands however are found [illegible] the whole length of the Intestinal canal, with various modifications in different parts.

The Ileum (from eileo to twist) comprises the remaining three fifths of the small intestine. It has no striking peculiarities, except the existence of Peyers glands in its inner surface. It is somewhat smaller, paler & thinner than the jejunum. Peyers glands commence in the jejunum, but increase in size & number towards the ileo-caecal valve, where they terminate. Of their nature & use, scarce anything is known. They are in patches of various sizes, varying from a quarter of an inch to 3 inch in their longest diameter, & from a quarter to an half inch in their shortest diameter. They are thought by some to be [illegible] of the [illegible]

ulary glands, in a respect differing & are similar in nature. They are very much enlarged in Typhoid fever; & some even maintain, that typhoid fever consists in a particular diseased state of these glands, thus substituting the effect for the cause of the disease.

Of the large intestine. It has a little length. It unites with the ileum through the ileo-caecal valve, which is formed by two folds of mucous membrane, so arranged, that the excrementitious matter is allowed to pass readily through in its regular course, but with a difficulty scarce surmountable in a contrary direction. It commences in the right iliac fossa; runs up along the right side to the under surface of the liver; then transversely across the abdomen at the upper part of the umbilical region, & down the left side & over the sacrum to the anus. It is divided into three parts, Coecum, Colon & Rectum. The Coecum is the cul-de-sac at the commencement of the large intestine & below the ileo-caecal valve. It terminates in a tail-

into Solubility, and the sugars again into lactic acid,
while at the same time it exerts a certain sol-
vent power on [illegible] substances.

The food having undergone the process of Prehension, Mastication & Insalivation, is now through an act of volition, conveyed on the tongue back to the anterior palatine arches; but so soon as it has passed these arches, all voluntary action ceases, & purely reflex action begins. The anterior palatine arches close over the tongue, so as to prevent the retrograde motion of the food. The posterior palatine arches & soft palate spread out over the upper part of the pharynx so as to prevent the food's transit into the posterior nares. The larynx is drawn up under the root of the tongue, & the epiglottis falls over the glottis, & thus there is but one course left for the food to take, & that is down the pharynx & oesophagus & through the cardiac orifice into the stomach. The process by which the food passes from the mouth to the stomach is called Deglutition. That part of the process from the

anterior palatine arches to the stomach, is, as said above, altogether independent of volition; coming as it does from the exciting spot, which we sustain during the first stages of unconsciousness. This is accomplished by reflex action. The food impressed on the nerve filaments of the part, the impression is [illegible] by afferent nerves to the spinal chord, from which an influence is reflected by the efferent nerves, which predispose the parts for deglutition, & set into action the constrictors of the pharynx. These, contracting upon it, behind the food, force it along down the tube into the oesophagus, whose muscular fibres, from the presence of foreign matter, are also caused to contract, & continue to force it on to its destination.

Immediately on the food reaching the stomach, it commences to undergo a churning process, which is accomplished by successive contractions & relaxations of different parts of the stomach. The presence of food causes a

commencement with the secretion of gastric juice this continues to be secreted from the gastric follicles so long as any food remains in the stomach unacted upon; - provided that the food ingested is not in excess; that is beyond what is required for the nutritive sustenance of the system, since the amount of gastric juice poured forth is always in proportion to the wants of the system, & not to the food taken in. By this churning process the whole mass is well worked up. Each portion is brought into contact with the gastric walls, & is thus enabled to obtain its share of gastric juice. This process continues till all the food has been converted into a grayish, semifluid, homogeneous mass called Chyme. The operation by which this mass is produced is called Chymification; but for the part which each ingredient of the gastric juice performs in this operation, I refer the reader to my remarks on the properties of the fluid, - only remarking

generally here, that the action of this fluid is that of a solvent.

The whole mass of food conveyed into the stomach does not remain there, till it has all been converted into chyme, but as soon as any part of it has been reduced to this state, the pylorus permits it to pass through into the duodenum, while it prohibits such as has not been reduced to this condition.

In the process of chymification, Proteine compounds are converted into Albumen, although they will have to be reconverted into Proteine before they can go to building up the system. Gelatine is dissolved, if it be introduced in a form capable of being acted upon. Gummy substances are dissolved when in a soluble form, as pure gum pectine, or dextrine. Starch, sugar & fat, are very little acted upon by gastric juice. These are reduced to an absorbable state either in the mouth or duodenum.

[illegible]

for being taken up by the absorbents.

This mass of alimentary or excrementitious matter in the duodenum, being prepared for separation into its respective parts, begins to be conveyed by the peristaltic action of the intestinal canal along this tract, & while the valvulae conniventes prevent its too rapid progress, the lacteals, which are so abundantly distributed on the mucous membrane, are busy in extracting the nutritive from the excrementitious portions, & the latter pass ~~first~~ along the small, through the ileo-coecal valve & large intestine, to be discharged through the anus, by the act of defecation. Thus before each portion of the excrementitious part has passed the ileo-coecal valve, & become faecal matter, nearly, if not all, the chyle or nutritive ingredients has been absorbed by the lacteals, & is being rapidly elaborated & conveyed into the general circulation for the maintenance & building up of the system. But if [illegible]

An
Inaugural Dissertation
On
Pneumonia.
Submitted for Examination.
To the
Provost Regents and Faculty of Medicine
of the
University of Maryland
For the
Degree of Doctor of Medicine.
By
Charles H. Jones.
Of
Maryland.
1851.

Among the long Catelogue of diseases with which Mankind is afflicted there are none of more importance & deserving more attention from the Student and practitioner than those which are Confined to the Thorax and its viscera, A large number of these diseases are Characterized by the rapidity of their invasion, and the speedy & extensive dissolution of earthly ties, they fearfully sweep away thousands of victims.

Of the vast number of Thoracic diseases it is not the purpose of this Communication to Consider, although all of them may be justly entitled to the minute Consideration & Study of the Student. Yet there is no one of them which in after life he could

be more likely called upon to treat than
"Pneumonia" this is a disease subject
to a variety of complications. all of which
are serious enough to avoid if possible.
I shall speak of Inflamation of the
Lungs in its acute Idiopathic
form: as it occurs in the adult
In this form of Pneumonia there is
generally a complication of Bronchitis.
More or less of Pleuritis also exists in
a large majority of Cases, although it
may sometimes be so slight as
scarcely to be noticed by the physician.
It is evident however in these Cases
that the danger to life is dependant
upon the Inflammation of the Lung
and not upon the Pleura.— Pneumonia
may affect either one or both Lungs
or it may affect a part of one
Lung or the whole of it

This disease more frequently affects the right than the left Lung. Of the hundred & fifty-one Cases collected by Andral In Ninty-three the right Lung was a lone diseased. In Thirty-eight the left In Seventeen both. and In Six the location was not determined. Hence from these Statistics Pneumonia is more than twice as Common on the right Side as on the left The lower lobe is the portion most frequently affected. Of Eighty-eight Cases Collected by Andral he found the inflamation in the lower lobe In Forty Seven Cases In the upper lobe Ninty three the remaining Eleven affected the entire Lung. The proportion is more than one half affecting the lower lobe. Pneumonia may be Secondary when the inflamation attacks the Vesicles of the Lung this may happen without

the parenchyma of the Lung being effected It may be lobular, this happens commonly in Children. it is Comparatively rare in adults. It is Called Lobar or Lobular when the entire lobe or all the lobes of a Lung are attacked with the Inflamation

Susceptibility — There are Some diseases ~~after~~ which, after having occured once Confer upon Such a person a preventative from Subsequent attacks under this head may be Classed many of the exenthematous & epidemic diseases This is however far from being the Case with Pneumonia, on the Contrary the Susceptibility of the respiratory organs are rather increased in proportion to the frequency with which they have been effected. This predisposition to Several attacks is of Course modified by the age and the physical

Constitution of the individual, they effected,
thus a person old & debilitated or
worn out by fatigue hunger and
intemperance may be affected by
upon slight exposure with subsequent
attacks of the disease, while on the
other hand a person of strong Constitution
tution vigorous in body & mind of
regular & temperate habits may be
exposed to the exciting and predisposing
Causes with impunity. All ages and
Sexes are liable to attacks of Pneumonia
for it has been known as Stokes
says to attack the foetus in utero
Sex has its modifying influence.
there is a greater tendency to attacks
of the disease in Men than in Women
Causes. Acute Idiopathetic
Pneumonia sometimes occurs when no
Cause of its existence can be given.

it is a disease of Cold Climates. it is more Common in the "United States" during the latter part of winter and begining of Spring. The Causes are great exposure to Cold. Such as exposure to night air damp atmospheres insufficiency of Clothing wet feet a sudden transition from warm to a Cold temperature. especially if the body was heated and in a State of perspiration. the inhalation of noxious gases & the poison of a rattle snake has been known to give rise to the disease. it is also probable that it may sometimes be owing to deleterious miasms. which entered the System by means of the Cutaneous or pulmonary absorbents. Cases of Pneumonia have sometimes been met with occurring to persons who reside

in a Malarious district when no
possible Cause could be assigned
to account for its origin. Pneumonia
may arise from any Cause that acts
injuriously upon the human System
or has a tendency in any way to
diminish its Vital action.-
Anatomical Changes. Pneumonia
Consists of an Inflammation of the
parenchyma of the Lungs, and they
are three Conditions or Stages of the
Organ. Corresponding to the extent of
its inflamation- The first Stage of
the disease is that of Engorgement.
the diseased organ in this Stage
is found to be of a deep red Colour-
Crepitates under pressure. When Cut
exudes a Copious Bloody & frothy
Serum. it is now Compact and
heavy than in health and floats

in water. If the lung be not affected in this Stage it passes into the Second or that of red Hepatization as Laennec & other writers have termed it In this Stage the lung is of a deeper red than in the first. Absence of Crepitation upon pressure. the diseased Lung is so much increased in density that it will sink in water. it Contains no air. it becomes soft so much so that it is easily torn and when pressed between the fingers it expresses a reddish fluid which is thicker and in less Amount than is observed in the first Stage. when Cut into it resembles liver hence its name Hepatization.

In the Third Stage or that of diffused Suppuration. in this Stage there are two Conditions named by Laennec

Gray Hepatization by Another Gray
Softening and the other Abscess
In the former Condition which is by
far the most Common the Lung is
found to be Compact and dense as in
the Second Stage; externally it is of
a Yellowish or Grayish appearance
when Cut, it expels a Yellowish or
Grayish or purulent Fluid which is
Sometimes mixed with blood, it is
much Softer than in the Second Stage

The Second Condition or that of
Abscess is extremely rare in Adults,
Sometimes the pathological Anatomist
discovers Metastatic abscess formed
from violent injuries or Severe Surgi
cal operations, Abscess of the adjoin
ing parts Such as the Pleura
Mediastinum Peritoneum, Liver &c
may occasionally open into the

Lungs & form Cavities. But it is very uncommon to meet with a Collection of pus as the result of Acute Disorganic Pneumonia. Chomel states that during an experience of twenty five years he saw only three Cases; Laennec only five out of several hundred Cases examined by him. Gangrene like Abscess is an unusual result of that form of Pneumonia now under Consideration. In this Condition the Lung is found to be more moist and less Coherent than in health and presents a dirty whitish brownish or blackish appearance, the Gangrenous parts are found softened and disorganized, and exudes when Cut a greenish and putrid fluid of an offensive odour. This Condition is sometimes found in Abscesses & in tuberculous Cavities

Duration. This varies according to the seat and intensity of the inflamation the disease when Violent occuring in a previously weak and debilitated person, may terminate in three or four days or even Sooner, or when not so Violent may last from thirty five to fifty days. thus assuming a Chronic form. The average duration of an ordinary Case of Pneumonia given by different authors ranges from ten to twenty days.-

Symptoms. The Commencement of Inflamation of the Lungs is often marked by Rigors followed by heat, an increased frequency of pulse. these premonitory Symptoms are soon followed by a Cough, Stitch or pain in the Side, with a sense of oppression in the Chest,

In Some Cases however the disease steals on more insidiously, the inflamation appearing to propagate itself slowly and by degrees.— The Symptoms of Pneumonia may be divided into Local & General. The Local Symptoms are those furnished by the Lungs. The General are those furnished by other organs affected Sympathetically. Under the head of Local Symptoms we may include Cough Expectoration. Dyspnoea. Pain, and the Signs furnished by Auscultation And Percussion. Upon each of these Symptoms it is proper to make a few remarks.— The Cough in Pneumonia affords but little information. Although present in a large Majority of Cases; it is usually dry in the Commencement of the disease

but soon after it is accompanied by a very peculiar Expectoration; this Expectoration Consists of a transparent rust Coloured Sputa which assumes its Characteristic appearance from the Second to the third day of the disease. the Colour of the Sputa is owing to its intimate mixture of Blood with Mucus. this important Symptom is easily recognised, the density & viscosity of the Sputa increases as the disease advances, thus when the inflammation passes into the Second Stage, it becomes viscous tenacious transparent and gelatinous, adhearing closely to the Sides of the Vessel Containing it. So Marked is this at times that the Vessel Containing it may

be Completely inverted without the Sputa being detached from its Sides In the more advanced Stage ~~of the~~ of the disease the expectoration is of a brownish red colour of the Consistence of gum water liquorice water or plum Juice. Andral Says that this kind of expectoration has led him to announce the existence of the third Stage of Pneumonia and that Subsequent examinations of the dead body has seldom failed to Justify his diagnosis.

Dyspnoea, this Symptom is Sometimes So Slight as Scarcely to be observed either by the patient or physician. at others, it is more marked, being So severe that the patient is unable to lie down and his features become expresive of the utmost anxiety,

the degree of dyspnoea is probably owing to the extent of the inflamation although it differs so much in different individuals, that Dr. Watson says that the difficulty of breathing is not a certain sign of the extent and degree of the inflamation.— Pain in Pneumonia appears to exist only in those cases that are accompanied by some degree of Pleurisy, the pain is commonly felt behind the Mamma or between the Mammæ & Clavicle. It is increased by Coughing by a full inspiration by a sudden Change of posture & by pressure or perspiration. Andral says that in all the individuals in whome he had known this pain to exist, and who died, he found the pleura inflamed.

And Covered with Coagulable lymph &c,
and on the other hand the absence
of pain Corresponded with a Sound
Condition of the pleura.
This Concludes what I have to say of
that portion of the Local Symptoms
which are intelligible to the patient.
And I now Come to the Consideration
of three more formidable but important
Symptoms, revealed alone to the
physician through the intervention
of Auscultation & Percussion.
Auscultation indicates a particular
Method of investigating the Condition
of Certain internal organs, through the
Sense of hearing. By applying
either the ear directly to the chest
or through the Stethoscope enables
the physician to form an accurate
diagnosis of Pneumonia, a peculiar

Crackling or Crepitus Sound will be heard. This Sound has been compared to the explosion of Salt when thrown upon red-hot Coals. To the noise produced by crumpling a fine piece of parchment. This Sound Dr Williams observes may be readily obtained by rubbing between the finger and thumb a Lock of ones own hair close to the ear.

This important Symptom Laennec calls Crepitant Rhonchus, which proceeds from the Ramifications of the Bronchi and is the result as Archal says of the bursting in quick Succession of a Multitudes of minute air bubbles. this Crepitating Sound is heard in the first Stage of the disease.

Dr Watson says that Auscultation may trace the morbid Changes in the lungs through the Stage of

Engorgement to Hepatization but cannot with Certainty trace it any further, as the disease advances the altered Condition of the diseased lung give rise to altered Sounds. When the patient breathes a puffing Sound is heard or more properly Speaking, Bronchial respiration. The patients voice also gives rise to a peculiar Sound Called Bronchial voice, or Bronchophony

In the third Stage of the disease Auscultation affords but little information. the physical Signs are imperfect. Percussion Combines Auscultation with the a sense of touch, The impression Communicated to the finger & ear by percussion reveals but little or nothing in the first Stage. the Sound is Clear. In the Second and third Stages of the disease a Manifest dul-

ness or flat sound is heard on the affected side. - Important as these modes of pulmonary investigations are they may sometimes fail as for instance when the inflammation occupies but a small portion of the lung, or when it is seated a great distance from the walls of the Chest.

The General or Sympathetic Symptoms are less manifest and of less importance to the physician in the management of the disease, than those which have already been noticed. The most Constant & important of these Symptoms is disordered Circulation which is rendered manifest by the Condition of the pulse, which is usually full & strong, sometimes frequent & small. The Cuticle is sometimes dry from the Commencement of

the disease, at other times it is moist and Covered with a Copious perspiration. Urine. Scanty & high Coloured, The Liver is often Sympathetically affected in Pneumonia. this organ is sometimes inflamed at other times its Secretions are arrested. and gives rise to what has been Termed Bilious Pneumonia.- The digestive organs are also much affected. which is rendered manifest by the appearance of the Tongue which is generally moist & Coated with a whitish fur. Vomiting & diarrhea have are accidental Symptoms, the latter more Common in the advanced Stages of the disease. The Nervous System is generally not much affected Delirium Sometimes arises. Sometimes great prostration, and the disease

Apyrexia and adynamia form?
but there are Complications with
than Symptoms of Pneumonia.-

Diagnosis. Every Case of disease
presents to the physician this grand
problem to solve & to be with this an art is one
of the most difficult and at the
same time most important in the
whole Circle of Medical Science

From what has been Said in
the preceding part of this Essay
I think the diagnosis of a
Case of uncomplicated Pneumonia
Cannot be difficult.- The disease
Commonly Sets in with Signs followed
by fever which varies in degree, being
Sometimes mild, at other times very
intense. It is attended with flushed
Cheeks, pain in the head and a sense
of oppression in the Chest. There

Symptoms are soon followed by a
Cough with a peculiar rust Colored
Sputa. These Symptoms are however
often absent at the Commencement
of the attack, but when present,
and taken together may be
Considered as pathognomic of the
disease. The physical Signs are
the most important, as they
indicate the extent as well as
the nature of the disease. In
the first & Second Stages they are
well marked. But when the
disease passes to the third Stage
it Cannot easily be distinguished
by these Signs, the same dulness
on percussion & same respiratory
Sounds are heard. The existance of
this Stage may be recognised by
the general appearance of the patient

his face becomes pale languid and expressive of great anxiety, pulse weak & rapid, increased frequency of respiration, Skin often bathed in a Cold Clammy perspiration The peculiarity of the Sputa is also of great value in this Stage of the disease. If the disease terminates in Gangrene. The existance of this termination may be recognised during life by the horrible odour which is perceived as soon as the physician or attendents enter the room where the unhappy patient is lying. this foetid Smell is observed in the breath & Sputa.

As there are most always pain in Pneumonia more or less severe and as it is in all cases probably owing to the inflamation existing in the

investing Membrane of the Lungs.
The question of diagnosis between
Pleurisy & Pneumonia becomes of
Some interest & importance to the
physician. In the former disease the
pain is Sharp & lacinating, there
may or may not be Cough if it is
present it is generally dry & hard.
There are no Crepitation or rust
Colored Sputa which are so
Characteristic of Pneumonia. In this
disease the Cavity of the Chest is not
distended as it frequently is in Pleurisy
owing to the existance of a plentiful
effusion:- Upon Auscultation in
Pleurisy a friction Sound is heard
which is not the Case in Pneumonia
In Pleurisy Rales upon Percussion
is heard much Sooner than in Pneumonia
In Pneumonia the patient is generally

indifferent as to portion. In Pleurisy the patient lies usually, on or toward the affected side. The inflammation may also attack the mucous membrane of the Bronchial tubes giving rise to a Complication with Acute Bronchitis so similar in the two diseases that it is often difficult to distinguish the one from the other during life, except by the physical signs. Percussion generally furnishes no direct sound in Bronchitis the sound being usually natural

Upon Auscultation in Bronchitis a wheasing sound is heard, this sound accompanies breathing and may be heard by applying the ear to the patients mouth. this sound Laennec has given the name of sonorous rale or Bronchus. Perhaps the math-

important diagnostic sign between the two diseases is the Sputa. In Bronchitis it is streaked with Blood while in Pneumonia it is intimately mixed with it. In Bronchitis it has not that extreme viscid & rusty Colour as in Pneumonia,

Prognosis. When the disease is to terminate by recovery, it gradually retraces its Steps untill it reaches a healthy State, If the disease has advanced to the Second Stage, it gradually returns to the first & this stage will be announced by the Crepitant Rhoncus

When the disease reaches the third stage if it is to terminate in resolution; there will be a gradual improvement of the patient untill the disease pass into the Second Stage & from this to the first

If abscess be formed the return from this Stage is marked by the Secretions of pus becoming less and less, it becomes Mucus in its Character. The Expectoration is an important guide in the Prognosis its Viscosity & rusty tinge is in proportion to the intensity of the Inflammation. Dirty & watery brown Sputa indicates the probable Supervention of the third Stage, The Sudden Suppression of the Expectoration is also an unfavourable Sign.

A frequent pulse as from one hundred & twenty to one hundred & thirty, with hurried & difficult respiration are unfavourable Symptoms, The Supervention of Delirium is a Symptom of great danger & the more so when Constant low & muttering, as it shows

that the Brain is Suffering from Some Obstruction in the Circulation. but in Nervous irritable persons in Hysterical females it is of Less importance. A Comatose State is no less fearful than delirium as it Shows that the functional disorder is too great to maintain necessary treatments. The Age of the patient will modify the Prognosis there is a greater tendency to the disease in old & debilitated persons and when it does occur to such persons it is generally rapid in its progress. Gangrene one of the most fearful & fatal of all the terminations, does not necessarily prove fatal, happily for Mankind This is a termination not often met with. It is Commonly a fatal occurrence. Yet a Strong and Vigorous Constitution may triumph

over this Stage - The extent and Seat of the inflammation is not without its influence in the Prognosis of Pneumonia In double Pneumonia affecting both lungs at once or when the whole of one Lung is affected the Prognosis is unfavourable. When the Upper lobe is the Seat of the inflammation, there is a greater tendency to a fatal termination than when Seated in the lower lobe. I have been Speaking of Pneumonia in its most aggravated form, But in ordinary attacks of the disease when it is uncomplicated with any other disorder & when it attacks a person previously in good health and the treatment is Commenced early for this modifies the disease very much. the Prognosis is favourable

Treatment. Pneumonia is an inflammatory disease seldom mild in its character, and demands the treatment of ordinary inflammation, modified by the peculiarities of the organ affected. The physician has not to deal with new names, and therefore prescribe a routine treatment, but with varying morbid Conditions of the Animal Economy. The treatment of Pneumonia as in most other diseases may be said to depend upon three Conditions namely. Pathological, Diagnostic indications. and Therapeutic expedience, In ordinary Acute Pneumonia without any serious complication or Organic Complications, the treatment is simple, the disease may be mild, but at this seemingly

Mild attack Should never induce the Medicial attendant to trust too much to the. Vis Medica Atrix Naturae, and thereby permit his faculty of attention, and watchful Scenting to be diminished.

In the early Stage of the disease when the Lung is in a State of Congestion. Blood Letting is the remedy, there is no disease that bears the loss of blood better than Pneumonia, it is indicated not only with the view of lessening the Inflammation, but also to diminish the action of the Lung and thereby procuring rest for the diseased organ. The Joint Bleeding Should be free & Continued untill the ending phenomena of the disease Such as pain & Dyspnoea have Subsided

In a plethoric person and if the disease is of a highly inflamatory type, with evidence of great vascular excitement. the Bleeding should be Carried to the verge of Syncope and should be repeated according to the Knowledge of the disease and the Symptoms present.

Old age nor the previous Condition and habits of the patient Should not deter the physician from Bleeding nor Should a weak and debilitated State of the pulse be looked upon as a Contra indication for the use of the Lancet. the pulse often rises after venesection after Blood Letting, if there is much excitement. it may be Combated by a Sedative dose of Opium but this remedy Should be given with

Caution as it has a tendency to
Check expectoration. The next
remedy is Tartarized Antimony.
this Medicine acts as a Diaphoretic
Expectorant or a direct Arterial
Sedative. it may be given in 1/48 gr
doses gradually increased, unless
Contra indicated by a diminution
of the patients Strength, great
Cerebral excitement, excessive irrita-
-bility of the Stomach or Some peculiar
idiosyncrasy on the part of the
patient. The peculiarity about the
Modus Operandi of this Medicine
is that after the first one or two
doses, the System becomes as it were
accustomed to it and the patient
Can take it with Comparative imp-
-unity. If it Should Cause purging or
Vomiting, this may be remedied by

Combining with it a few drops of Landanum.

If the medicines given to fulfill other indications, do not sufficiently open the Bowels, then Mild purgatives should be given for that purpose such as Calomel Rhenbarb Castor oil or a purgative Enema.

This treatment is applicable to the first Stage of the disease, which may be aided by the use of demulcent drinks such as flax Seed tea with a little Nit potassa Enpatorium or Senega

When the disease goes on to the Second Stage. General Blood Lettings is not so beneficial as it is in the first Still it is Sometimes of great benefit in the Commencement of this Stage.

Local Depletion Such as Cups or Leeches are the depletory Remedies in

this Stage of the disease, they should be applied over the posterior part of the Chest, as near as possible to the Seat of the Inflammation they should be used in large numbers and repeated according to the Strength of the patient and the Symptoms present. This depletion should be followed by Mercury the Mild Chloride is the best of its preparations it acts as a direct Antiphlogistic and as an Antiplastic remedy by preventing or Checking the formation of Lymph. It is particularly indicated Should there be any deficiency of the Biliary Secretions. It Should be given in Such doses as to produce its impression upon the General System, to do this a Slight action upon the gums are necessary. It Should be

given in one or two gr doses ever two hours
it may be given in Combination with
Opium or what is perhaps better Combine
the Calomel with Dovers powders.
The Ipecac in this preperation
facilitates the operation of the Calomel
and promotes Secretion from the Lungs.
This treatment may also be aided
by the use of Expectorant drinks.
It Sometimes happens that this
treatment fails to arest the disease
and it either remains in a highly
inflammatory Condition, which renders
it necessary to recur again to depletory
means; or what more Commonly happens
it passes into the third Stage,
thus assuming an Asthenic form.
This Stage of the disease demands from
the Medical attendant, quite a
different treatment from the preceding

Small Local depletion when it Can be borne, is often of great benefit but Should be done with extreme Caution

Blisters are useful in this Stage of the disease, they act as Antiphlogis- tics in checking the Inflammation as Stimulents to the General System and at the Same time Serve to prevent Collapse which is So Common in this Stage of the disease; they Should be large, applied under the Axilla or on the posterior part of the Chest. — Tartar Emetic ointment is valuable, applied over the Chest So as to produce rapid pustulation,

Ointment of the Iodide Potassium and Iodine internally has been recomended by Some,

The internal remedies are useful but it is often difficult to determine

upon there administration they must be given according to the patients Strength and the indications present,

The best remedies in this form of the disease are the Combinations of Calomel Ipecac & opium, which Should be given in very Small doses, If there is much oppression & difficult Expectoration The opium is Contra indicated, Stimulating Expectorants are valuable, Should obstinate Constipation occur which is Sometimes the Case, the Bowels Should be moderately opened by a purgative Enema the oil of Turpentine Should enter into its Composition it is often of great Service in Such Cases,

It is often a period of great difficulty to determine the precise time when Stimulents Should be given, the

Physician should ever bear in mind that there is always a Corresponding degree of weakness following their Administration.

When the powers of life begin to flag, the pulse becoming weaker and weaker, the Heart & Brain Sluggish and inert Skin Cold & Covered with a Clammy perspiration, In this State of great prostration Fainting Nature begins the use of Artificial Stimuli to enable her to battle Successfully against the hand of death, there use is Modified by the Constitutional habits & previous position in life of the individual, thus when Pneumonia occurs in a person of intemperate habits Alcoholic Stimulents are needed Much Sooner & in larger quantities than they would be in a person of

temperate habits, This would also be the Case in one who has lived high and of indolent habits.

In the Materia Medica there are a great number of Stimulents all of which possess their occasional advantages.- But the best are the preperations of Alcohol. Opium, Bark Camphor, Ammonia, Phosphorus, and Turpentine.- I have been Speaking of Pneumonia in its acute uncomplicated form, but the Physician Should ever bear in mind the inert powers of the human frame, and Stand prepared to Combat any Symptom or Complication which may arise.

In the management of Pneumonia Hygiene, is not without its influence in promoting a happy termination of the disease, The patient Should be kept

in a State of rest with his Chest raised above the level of his body, all bodily exertions Should be avoided. The respiratory organs Should be kept in a State of Complete repose. The Sick room Should be of a Moderate and equal temperature, all Noise and every excitement of the Mind Should be avoided. No one Should be allowed to frequent the Sick room whose presence is not necessary to the patient. The Conduct of the Medical Man Should be gentle and Cheerful. The regimen of the patient Should be Simple and Anti-phlogistic.

In Convalescence from an attack of Pneumonia, Bitter Tonics Should be given. This may be hastened by proper attention to Hygienic Means Such as warm Clothing, proper

attention to diet, and avoiding all
exposure to Cold, or any thing that
has a tendency to diminish the vital
activity of the human frame, —
I have now come to the termina-
tion of this Essay, and Concluded
to the best of my ability the task
which I had proposed to myself.
I am fully aware of my own
incapacity to render the Subject the
justice which it merits.
I have endeavoured to be as
Condensed and intelligible as
possible, At the same time to
think and act as far as
practicable for myself. —

An Inaugural dissertation
on Malaria.
Submitted to the examination
of the
Provost Regents and faculty of Physic
of the
University of Maryland
for the degree
of
Doctor in Medicine
By
Francis E. Lynch.

Baltimore 1851.

Dedicated, as a feeble tribute to the private worth and professional skill of Prof. Samuel Chew.

It is not my purpose to discuss the numerous bubbling theories that have from time to time advanced upon the subject I have chosen; nor to enter into detail regarding the speculative philosophy to which it has given birth; but merely to trace, with a running pen, the known causes and effects of aëriform exhalations which, in ordinary parlance, have received the general name of malaria. The evidence of ages carries conviction to our minds of the actual existence of the effluvium; yet we can only argue comparatively, for the investigations of chemistry avail us nothing, neither explaining its nature, nor determining its presence, and air obtained from the Pontine marshes of infamous celebrity, was in its analysis found equal to that which encircles the highest summit of the glittering [illegible] Alps. To the [illegible]

infer its existence, as we do that of a prevailing epidemic from effects too manifest to be doubted.

Whether it be composed of one or more agents exerting a deleterious effect upon the animal economy, is a mooted point that has given rise to much professional bickering. Some maintain, and not without plausibility, that there is an essential difference in the miasm, ghting up Malarious fevers of heterogeneal type and are strongly supported by the occasional prevalence of one form of these fevers to the total expulsion of all others. Some again dispute this, asserting that diseases certainly deriving their origin from the same cause, exhibit forth a great dissimilitude in their consequent effects; but, however plausible this may be, I cannot believe the diversity to be so great that several classes of

this disease may rage in different pla-
-ces deriving their origin from the
same specific cause.

Heat, moisture, and vegetable decomposi-
-tion appear to be necessary to the evolution
of miasma. Although many question
the absolute necessity of the latter, and
indeed contend that its presence is not
essential, citing numerous instances
where injurious effects have been
experienced, and it was not visibly
discovered. but I am hardly inclined
to agree with this innovation of the
olden creed, and as the action of
water upon vegetable matter, combined
of course, with a certain degree of heat,
will certainly produce the miasm,
when it is independent of heat, I must
still believe that it is an important
promoter. The [illegible] of [illegible] in [illegible]
are instances of this, and it will not

probably be argued that it does not here play an important part in the production of the poison, which could hardly be the consequence of mere evaporation of the water. The combination of these generators are also essential for the production of Malaria, as without the presence of heat whatever exhalations might be produced would be innocuous, thus in the wet and marshy grounds of our southern states, vegetable matter decomposes year after year with no hurtful effect, until the shrubbery which excluded the rays of the sun has been removed, and then, and only then, are there evidences of its presence. Under the temperature of 60° F, it is seldom engendered, and a continuation of this quantity of heat, for a certain time, is no less requisite for its development. Beneath the burning heat of a tropical sun, where it is almost certain destruction

for one whose system is not accustomed to the pestilential influence of the atmosphere, and where whole districts are almost depopulated, or the inhabitants unqualified for the duties of life. Intermittents are early produced, whereas in a more temperate clime, they do not make their appearance until Summer is fully verging into autumn, and indeed their devastating career is often cut short by the harbingers of an adverse winter.

Moisture is necessary to the evolution of Malaria, though the quantity should be small, as an abundance acts rather as a preventive, than a generator. During the falling of heavy rains, the effects of the poison are for the most part humbled, but when the rain has ceased, and the earth gradually evaporated and dispersed

they burst forth with renewed violence. It is not above the surface only, that this agent is essential, but it may sometimes be concealed where the soil is hard and dry, and give rise to the most malignant fevers, as virulent as those produced by the most unwholesome marshes.

The effects of Malaria are more intense in the immediate neighbourhood of its source, owing to the condensated state of the poison, and by consequence the more condensed the poison, the more deadly its effects; thus, the morning and evening air being condensed and loaded with miasm, the more so from its being surcharged with moisture, is rendered particularly pernicious - whereas a greater part of the day, the atmosphere is in a more expanded and more active state, which diffuses the poison so much that it is comparatively harmless.

[illegible] [illegible] its apparent affinity for moisture, which appears to have the faculty of dissolving and retaining it in solution, and so condensing and adding to its baneful influence. Upon this principle may be explained the fact that heavy and long continued rains decrease the poisonous power of the miasm, by washing out, as it were, the effluvia from the atmosphere. Thus mists and fogs prove powerful vehicles, by the combined influence of the winds, in conveying this poison from place to place, spreading and propagating disease in their path, thus throwing light upon the anomaly of malarious diseases making their appearance in districts where there existed no apparent cause to give rise to the exhalations.

Malaria has a tendency for the ground
and a tendency to settle in low
places, seldom rising to any great
distance in the atmosphere. An elevated
position may be occupied with
comparative confidence, whilst at the
same time a low one may be suf-
fering from the direful effects of a
visitation of this poison, that the
lower floors of houses in malarious
countries are more unhealthy than
those of the upper stories. This has
also been ascribed to the affinity of
malaria for moisture, rather than
as some have supposed, to any
specific gravity of the poison itself.
As fogs and mists have been
noticed to cling to the surface of
the earth, and which, as we have shown,
holds the power to retain and
concentrate the infection.

The influence of winds upon [illegible], is another important fact, by a knowledge of which we may explain many occurrences that would otherwise seem strange. Thus from a prevalence of the winds in a certain direction, one side of a stream may be less unwholesome than the other, although the more healthy side may be in closer proximity to the cause of the exhalations. The miasm, as before said may be transported by the winds from one place to another, and the distance to which they may be carried, is almost incredible. It has been computed to be even so great as five or six miles. They do not thus prove altogether an evil, for although they may visit with the blight of disease situations that

even previously healthy, yet they prove beneficial by cleansing the atmosphere, and dispersing the miasm, thus preventing its concentration. Various impediments are capable of turning aside this destructive current; thus mountains and hills may protect the regions beyond them, though it not unfrequently happens that the exhalations in the form of fogs roll up the sides of these towering obstacles, and descending diffuse the poison around, in an otherwise protected country. Trees however from the effluvia for, and adherence of the miasm to their foliage, have the greatest power of security against these destructive exhalations. This property is even known to the inhabitants of intertropical regions, who indeed live generally on the very midst of pestiferous

marshes, with nothing save a belt of trees to screen them from the influence of the miasm.

Water is also a powerful protective agent. Even a small quantity is sufficient to counteract the offensive properties of the emanations, probably owing to their lowly drift, and affinity for moisture, being as we have before said so dissolved and retained in solution. It is a well known fact that vessels can approach a malarious coast, without the crew suffering any injurious consequences, as long as they remain on board the ship, but a single night on shore is sufficient to inoculate their systems with the poison. In the daytime this danger does not exist, in consequence of the mobility of the atmosphere, diffusing the poison

The immediate effect of Malaria acting upon the system is the production of a class of paroxysmal diseases which have received the name of Remittent and Intermittent fevers. These fevers are modified or increased as they occur in a cold or warm climate. The more temperate the clime, the milder the fever that is produced. In northern latitudes, Intermittents mostly prevail, but, as we proceed south, they give way to Remittents, and in the tropics we find them assuming the continued form. The period of incubation varies much, according to the greater or less degree of the concentration of the poison. As a matter of course, the more deadly and concentrated it is, the more speedy is its influence. Instances

are on record, where its effect was almost instantaneous, a few hours proving sufficient to induce a most malignant attack; and again the seeds may lie dormant in the system for months, until some exciting cause verify and bring them into action. Strangers entering an infected region are always more exposed to the effects of the poison than the resi=dents, who have become habituated, or in other words acclimated, to the morbific influence, which lessens the liability of their suffering from the general consequences of the exha=lations. They do not escape however, without the action of the poison telling fearfully upon their constitutions. They are generally shortlived and prone to many of the ills incident to human life. Their intellects too,

[illegible] with the [illegible] state of their bodies, and their spirits are low, brooding and melancholy. The ultimate effect of these fevers generated by the Miasm, become so aggravated by long continued inhalation, combined with much exposure or insufficient, or deleterious nourishment, as to affect seriously the liver, the viscera and the sensorium. In some regions, the biliary functions are so much deranged by this type of disease as to have acquired the appellation of gale fever, caused by the extraordinary concentration of the blood. Appearances of corruption, alterations, generally hypertrophy of the liver, an inflamed state, sometimes amounting to ulceration of the mucous membrane of the alimentary canal, and an

enlarged spleen are the prominent features presented by an autopsy. This last named viscus is at times so much enlarged as to be distinctly felt, and its very outlines are occasionally seen through the integuments of the abdomen. This state of the spleen is of such frequent occurrence in marshy districts as to have received the name of ague cake.

When the circulation is much impeded and embarrassed from the gorged state of the abdominal blood vessels, as necessarily must be the case during the rigor of an intermittent, the spleen is very much distended with blood. This frequently occurs, when from disease of the liver the passage of the blood is obstructed. With each paroxysm of the fever, the spleen becomes more

and more surcharged and being
thus distended may not immediately
subside but the blood may coagu-
-late within it or an inflammation
of its coating may supervene.
Thus it a very usual consequence of
the intermittent and it scarce can
rationally be questioned that this
enlargement of the spleen is caused
by repeated congestion of the vis-
-cera and internal [illegible].
The fine tree of Eucalyptus and the
floating plant of the inland
waters of Tennessee, [illegible], it
is spoiled the effects of Malaria.
and render situations healthy,
which from their geographical loca-
-tion are most exposed to its dele-
-terious influences.
Intermittents and remittents are by
no means the sole results of Malaria.

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Besides the organic affections of the liver and spleen, and the inflamma-tion of the alimentary canal, the mani-festations of, we have dropsy, oedema, brain, apoplexy, cholera, dysentery, diarrhoea and intermittent neural-gia referred to its agency, and rheumatism is placed by some upon this truly formidable category.

AN

Inaugural Dissertation

On the use of

Collodion

IN

Small Pox and Varicella

Submitted to

The Board of Examiners Faculty of Physic

in the

UNIVERSITY OF MARYLAND

For the degree of

Doctor of Medicine

BY

Jon.a E. Large.

I am happy to announce to the Faculty of Physic in the University of Maryland that I have discovered an efficacious remedy to prevent the disfigurement that generally succeeds small Pox and Varioloid a remedy long sought but hitherto without effect. I now however submit one which has been successful in three cases that have come under my observation. I allude to that invaluable preparation which has received the title of collodion or liquid cuticle and which was first employed in surgery by Mr J Parker a Student of medicine of Boston in January 1847. This liquid has been employed for covering ulcers or

abraded surfaces with an impervious film not wetted upon by water and for encasing parts which require to be kept in a definite position. The sedative and astringent effect which this medicine produces upon the skin led me to suspect that it might be useful in that inflammatory condition of this organ which attends small Pox. Vaccination has disarmed this formidable disease of many of its terrors but nothing as yet has succeeded in saving those who have taken it from the pits and scars which disfigure them for life. I propose Collodion as a means calculated to accomplish the desirable result and I base my recommendation upon

the following cases. The first one that I came under my treatment was a very mild case of variloid and the disease had advanced to the fifth day. There were a few scattered vesicles distributed over the face, some of which had advanced to pustulation while others were mere papulae. on the sixth day I prepared my self with a bottle of Judd's Liquid caticle which I applied to several papulae about making their appearance and to a few that had already become pustules. The last were arrested in their progress and in twenty four hours they had diminished in size one half. The papulae had entirely disapeared. not a trace

of them being perceptible. The process which they underwent was beautifully delineated through the delicate false outside that overspread the vesicles.

The second patient was a little boy about ten years of age. This was rather a remarkable case. It commenced with a severe pain in the hypogastric region which continued for about five days with obstinate constipation. On about three days I succeeded in obtaining an evacuation but with very little or no relief. The pain continued without tenderness on pressure over the part affected. External by the part was of a livid color without inflammation. The redness and the pain were

confined to the hypogastric
region only. The pain of the head
back and extremities that generally
precedes the eruption were entirely wanting in this patient He
complained of no pain but that
in the lower part of his abdomen
and the accompanying fever was
more like enteric fever then that
of small pox. This little boy was
exceedingly ill, and continued
so until the fifth day when he
appeared a little easier I then
examined him rather minutely
and discovered a great quantity of
little elevations over the face and
extremities that presented the
appearance of warts with the apex
nearly as broad as the base and flat
They were so closely crowded together
that they were almost imperceptible

tible. The arms were not quite so thickly covered as the face and hands and the body still less. On the fifth day when these little prominances first made their appearance I diagnosed it a very bad case of Small pox and applied the collodion to the cheeks and to a few of the prominent features of the face and the sixth day the wart=like papulae of the face and parts that were encased with the liquid cuticle had almost disappeared. There was a mere trace of redness to be seen, while the surrounding parts were in a confluent state, the whole skin being apparently raised in a mass. Its beneficial effects were still more manifest from a comparison of the covered parts with

those on which the collodion could not be applied as the eye lids. lips &c. Those went on to pustulation, but the covered parts were entirely exempt from the eruption. From the excess of fever the false cuticle of the face had commenced to peel and exfoliate The remedy was applied the second time and was reapplied every twelve hours for four or five days untill the pustules had commenced to dry away. It was then discontinued dnd in a few days the false covering commenced to break and peel off, and the skin resumed its natural appearance. The third and last case of this disease in which I had an opportunity of employing this remedy

is now under my treatment his the papulae made their appearance over the face I applied the collodion to each one on one side of the face; and the other side I left to nature. The latter is thickly set with small pustules and the former is perfectly clear of the eruption

The application of Collodion

In small pox or the disease modified and called varioloid. This remedy should be applied to the papulae singly if they should be scattered. If the eruption is confluent it should be applied all over the surface when we want to protect the skin from being disfigured.
It may be put on with a brush or the end of the finger and

it should be used deuterously
from the fact of its evaporating
in a very few moments after becom
ing exposed to the atmosphere
and from its adhering to any thing
with which it comes in contact
It should be applied every twelve
hours, but if there be much fever
it should be applied oftener.
Where the skin is hot and dry
from the influence of fever
the false cuticle has a tendency
to separate itself. When the
edges of the false cuticle commence
detaching themselves from the
skin the remedy should be reap
plied It should be continued un-
til the vesication has quite dis
appeared on the surrounding parts

This invaluable solution is prepared by dissolving one part of Gun cotton in sixteen of rectified Ether contained in a bottle agitate for a few minutes and then add one part of rectified alcohol. The whole must be shaken until the cotton is completely dissolved and the liquid acquires a syrupy consistence. It is then strained through a cloth and kept in a well stopped bottle.

An Inaugural Dissertation On Inguinal Hernia

Submitted to the Examination of the Provost, Regents, and Faculty of Physic of the University of Maryland For the Degree of Doctor in Medicine.

By Jas. T. Chann, of Va. 1851.

Inguinal Hernia and its Treatment

By the term Hernia is meant the protrusion of a viscus, or organ from the cavity in which in a natural condition of things it is contained. Thus we may have Hernias of the viscera of the abdomen, of the viscera of the Thorax or of the contents of the Cranium; the latter constituting Encephalocele. But as it is our intention to treat only of Inguinal Hernia, we will direct our attention exclusively to a consideration of it.

From the circumstances of situation and contents, are derived all the appellations by which Herniae are distinguished.

If a portion of intestine alone form the contents of the tumour the case is called enterocele - if a portion of omentum only epiplocele and if both intestine and omentum contribute to the formation of the tumour, it is called an entero-epiplocele.

When the contents of the Hernia protrude at either abdominal ring and pass only as low down as the groin or labium pudendi, the case is called Bubon-cele - if into the scrotum, Scrotal Hernia. When the protruded

viscera lie quietly in their sac and admit of being easily put back into the abdomen, the case is termed a reducible Hernia and when they suffer no incarceration or constriction, but cannot be replaced owing to adhesions with surrounding parts, situation of Omentum &c, the case is said to be an irreducible Hernia. But when the Hernia suffers incarceration or constriction, it is said to be strangulated and this condition of things when gives rise to a train of the most alarming and dangerous symptoms.

The causes of Hernia are either predisposing or

exciting. Among the former we may mention a preternatural size of the openings, at which the viscera are liable to protrude; a weakness & relaxation of the margins of these openings; a preternatural laxity of the peritoneum; an unusually long mesentery, omentum &c. With regard to the external abdominal ring, the transverse tendinous fibres which tend to strengthen the upper part of that opening, are much weaker in some subjects than others. Men are much more liable than women to attacks of Inguinal Hernia, arising no doubt from the larger size of the abdominal rings

in the male than in the female subject. The contrary is the case however with regard to femoral Hernia, women, for obvious reasons, being much more liable to it.

With regard to the exciting causes, our knowledge is involved in less doubt. The great cause here, is the combined action of the diaphragm and abdominal muscles upon the abdominal contents. Feats requiring for their execution strength and agility, as jumping, lifting &c, often account in the most satisfactory manner for these protrusions; as in them the abdominal viscera frequently suffer the most violent

compression and if the abdominal walls do not possess the adequate strength for resistance, a rupture is certain to take place. Herniae are more frequent upon the right than upon the left side and the cause of this seems to be owing to the employment of the right instead of the left side in those offices of life which require great strength for their accomplishment, rather than to a difference in the size of the natural openings of the two sides.

The general symptoms of an inguinal Hernia, which is reducible & free from strangulation, are, an indolent

tumour about the inguinal opening, this tumour differing in size & form, from the difference in point of origin. The swelling often originates suddenly (except in cases brought on by predisposing causes alone, in which case the Hernia always increases very slowly) and is subject to a change in size, being smaller when the patient is on his back and in the horizontal position, but is larger when he stands. It is often reduced in size when pressed upon and regains its usual size when the pressure is removed. The size & tension of the tumour increases frequently after a meal or when

the patient is troubled with flatulence. The patient is also sometimes troubled with symptoms of colic, constipation and vomiting. This condition of things arising from the mutative situation of the parts involved, though in numerous instances the functions of the viscera remain undisturbed. Sometimes the contents of the Hernial sac may be known by the symptoms, but this is by no means always the case; for in a Hernia the contents are so changed in shape and size, and the Hernial sac may be so thickened as essentially to preclude the possibility of making a correct

diagnosis. If the case be an
enterocele and the fundus
of intestine small, the tu-
mour will also be small;
but if the gut be distended
with fæces, inflamed & con-
stricted, it will be tense and
will give pain after being
touched. On the contrary if
there be no stricture nor
inflammation, it may be
handled without giving pain
and the tension will be slight.
Upon the patient coughing
it will feel as if it were
thrown into and gradually
it will be easily returned into
the cavity of the abdomen
protruding in its ascent a
gurgling noise.
If the Hernia be one of slip

locele it will be found to be more flabby and unequal to the touch; it is generally perfectly indolent and more compressible than those of entero-cele and if the fluid is frozen be large, it will be found heavier than the last variety. It is said by Sir A. Cooper that, in very young subjects the contents of a Hernia are generally intestine and but seldom omentum. Instead of the form of Hernia above described we sometimes meet with a combination of the two and when such is the case we call it entero-epiplocele.

The diagnosis in such a case is not so easily made

out as in the other two varieties. But as the smooth and slippery surface of the intestine makes its reduction easier than that of omentum; we may infer with Mr Lawrence "that if a portion of the contents of the sac slip in easily and with noise, leaving behind something which is not easily reduced, the case is one of entero-hydrocele"

The prognosis in cases of Hernia is often exceedingly difficult to make out, owing to the necessity of knowing the state involved, the age of the patient, date of the disease, its being free or not from stricture &c &c.

If the patient be an infant, the case is not often attended with much difficulty or danger, the reduction being in these cases, easy as well as the descent and though it may sometimes again, still it may be replaced without the production of mischief. If the patient be an adult and in the vigour of life the consequences of maltreatment or negligence are more to be feared than at any period of life for reasons too obvious to mention. The great cause of mischief to be dreaded in these cases of intestinal hernia being strangulation and inflammation. which necessarily commence on

obstruction to the passage of aliment & feces through the part. In old persons, the symptoms are not so rapid, both on account of their laxity of frame and languid circulation, and also because their ruptures are most frequently of ancient date and the passage a good deal dilated.

If the disease has been one of long standing, neglected and suffered to be down frequently, the abdominal aperture is apt to be large, which circumstance renders the chance of cure extremely doubtful.

An intestinal rupture is subject to worse symptoms and a greater degree of hazard than an omental one, though

the latter is by no means void of danger. It is thought that, as a general rule, the smaller the Hernia the less hope there is of reducing it by the taxis. It is also thought by Mr Lawrence that the danger is greatest when the Rupture is incarcerated at the moment of its formation. On the other hand when Herniae form from predisposing causes alone, they seldom become strangulated and when this is the case the symptoms are not so violent, because the parts concerned are weak and relaxed.

The treatment of inguinal Herniae capable of easy and immediate reduc-

tion and not attended with any troublesome symptoms, is in most cases easy of reduction. It consists in the main of reducing the protrusion and keeping it in its natural position. This state of things is often met with in children and in them the hernia is general small and the sac thin — a condition of things most favorable to be cured by a proper apparatus be early and assiduously applied. It is a common error that children cannot wear a truss; but this in reality is not the case and it is the duty of the surgeon to correct this commonly prevailing opinion.

The indication here is to return the contents of the Hernia and if possible to unite the neck of the sac by adhesion or so to prevent another descent of the intestine. The same means of cure is applicable to similar cases of every species of hernia and it is the duty of the attending surgeon to see that the seat of the instrument is well adapted to the ring to start, for if this be not the case, the patient and his friends will be deceived and the reputation of the surgeon is likely to suffer. The seat of the truss should be supported by some soft material as linen &c.

glass and made so as to fit the part accurately. There is a difference of opinion as to which form of pad is most likely to effect a cure in these cases - some preferring convex - others concave and others again the flat pad. We should be inclined to think that the flat pad would perhaps be the best in such cases, for the concave variety would have a tendency to let a small portion of the gut protrude into its concavity through the ring - thus preventing the chance of a radical cure by adhesion of the parts at the abdominal ring. The

convex variety on the other hand would tend to protrude through the ring & thereby defeat union about its edges. For the reasons above stated we would prefer an instrument with a flat pad which would in our opinion be a happy medium between the other two. Where the Hernia is irreducible on account of adhesions, alteration in form, consistence &c., the only means of relief is to use a suspensory bandage; the patient at the same time being particularly careful to abstain from all feats requiring for their performance strength and agility & he

should keep the parts free from external violence and his bowels free from constipation. Even in cases of this kind it is the opinion of many surgeons that the sac should be opened — the adhesions broken up, and the parts returned within the abdominal cavity and there retained in the usual manner. We however consider this plan of procedure dangerous & unnecessary — for in its performance we would be likely, in such cases to wound the intestine — an accident which might place the life of the patient in extreme jeopardy. Moreover, patients who are

thus affected often live to an extended age, the hernia in such instances producing no inconvenience whatever in many cases. In such cases also we not only (as has been stated) subject our patient to great danger from peritoneal inflammation, but also by obliterating may produce artificial anus — a condition in our estimation but little worse than death itself. For the above reasons we should decline operating in such a case unless there was a necessity for it on account of strangulation.

The symptoms of

an incarcerated inguinal Hernia, as, a tumour in the groin resisting the impression of the fingers and if compression of intestine is painful to the touch - pain felt when the patient coughs, sneezes or stands erect &c &c.

These are the first symptoms and if they are not relieved, they are soon followed by nausea, vomiting, inability to discharge fæcal matters and according to some authors, hiccough these and in some cases fever. Prof. Smith of the University of Maryland differs from the majority of Surgeons in regard to the fæces in such cases. He

thinks that the finger is little if at all affected - at least such has been the case in his practice.

The treatment for such cases (leaving out the operation with the knife) is varied according to circumstances. As general the first thing to be done, is a trial to reduce it by the taxis which is simply pressure from the tumour in the line or direction with the plane of the hand. Sir A. Cooper thinks that efforts to reduce it by the taxis should be continued from a quarter to half an hour. If we cannot reduce it by the taxis alone we must combine it with

recollecting and often after the latter operation Hernia is reduced which seemed impracticable of it before. If the rupture cannot be reduced after bleeding, the warm bath must be immediately applied, and when there is necessity for the use of this agent, efforts at reduction should be made while the patient lies in it.

Should the above mentioned remedies fail, we must next apply cold and this may be effected in various ways.

A very good plan is to fill a bladder with snow and lay this upon the tumour — or when ice cannot be procured, we may use equal parts of Nitre and

muriate of ammonia and water. Ether poured upon the surface and allowed to evaporate answers a good purpose, but should be used with care lest freezing of the parts be induced. The same rule holds good in regard to the employment of ice, but when the use of them is imperitively demanded we should employ them with boldness.

Injections of the infusion of tobacco is another very important agent, but is powerful in its effects and should not be used until all other means have failed. The infusion may be made of the strength of a drachm of tobacco to a pint of water,

a small quantity of which should be used at a time and as soon as its effects are beginning to be manifest it should be immediately discontinued. When all other means have failed we then are forced to the necessity of using the knife. But before we describe the operation it is necessary that we should give the anatomy of the parts involved.

The anatomy of Inguinal Hernia

The tendinous aponeurosis of the externus obliquus muscle in its course downwards to its insertion into the pubis has

splits and forms a triangular opening, the inner or upper pillar of which being inserted in front of the symphysis pubis, interlacing with similar fibres of the opposite side and the external or lower into the spine of that bone. This opening is oblique in its direction, corresponding in this respect with the course of the fibres of the muscle by splitting of which it is formed. The opening thus formed is the external abdominal ring and gives passage to the spermatic cord in the male and round ligament in the female. The upper angle of this ring is strengthened by some ten-

transverse fibres which are called intercolumnar and in some cases of Herniae of ancient date these are said to be very strong. The lower border of the external oblique muscle is folded upon itself and is stretched across from the anterior superior spinous process of the Ileum to the spine of the Pubis under the name of Poupart's ligament, a portion of which is also inserted into the commencement of the linea ileo pectinea and this is called Gimbernat's ligament. Now those portions of the internal oblique and transversalis muscles which arise from the outer half or two thirds of Poupart's ligament arch

over the aponeurotic coat and is together inserted into the crest of the pubis immediately behind the external abdominal ring. This junction of these two muscles is called the conjoined tendon. Behind the transversalis muscle and between it and the peritoneum, is the transversalis fascia which is a cellulo fibrous aponeurosis, thick and dense below near the lower part of the abdomen; but becomes thin as it ascends and is lost gradually in the sub peritoneal cellular tissue. The transversalis fascia is attached below to the crest of the ilium and to the external two thirds of Poupart's ligament — internally to the external border

of the rectus muscle and at the inner third of the femoral arch it passes beneath Poupart's ligament and forms the anterior portion of the sheath of the femoral vessels. This fascia where it unites with Poupart's and Gimbernat's ligament assumes exactly their form and shape — so that if both Poupart's and Gimbernat's ligament be carefully cut away a fac simile of them will be left. There is an opening in this fascia about one and a half inches from the external abdominal ring which is made by the testicle in its descent to the scrotum about the eighth month of foetal life. It must be observed that the in

portion of the conjoined tendon of the external oblique and internal abdominal muscles into the crest of the pubis is immediately behind the external abdominal ring and that the spermatic cord passes first under it where it is wide and thin at its insertion. From the testicle in its descent from the lumbar region of the abdomen, passes through the internal abdominal ring, the inner the arched border of the inguinal triangle (being in this position behind the aponeurosis of the external oblique muscle) and lastly makes an obtuse angle in its passage through the external abdominal ring into the scrotum, being

ing with it and afterwards the spermatic cord. This canal through which the testicle passes in its descent is named the inguinal canal and extends between the two abdominal openings. It is bounded below by Poupart's ligament, above by the arched borders of the conjoined tendons of the internal oblique and transversalis muscles, in front by the aponeurosis of the external oblique, behind by the transversalis fascia and conjoined tendons, and at either end by the rings.

Inguinal Hernias are named from the point of their exit from the abdominal cavity. If the viscus protrudes at the internal ring

it is called a case of oblique or indirect inguinal Hernia, if through the conjoined tendon and external ring without traversing the canal direct inguinal Hernia. It is plain to be seen that either variety must protrude at the external opening for if the viscus first pass through the internal ring, it must traverse the inguinal canal before it can appear externally — though there are cases which occupy the canal itself without at all appearing externally and these cases are said to be incomplete.

The epigastric artery also after its origin from the external iliac just as it is

about to become strangulated on its passage upwards and inwards to the ventral muscles passes between the two abdominal rings, leaving the external ring to its outer side and the internal to its inner side. It is important to bear in mind the course of this artery, for it is it that we have to avoid in all cases where an operation with the knife is necessary. Sometimes when the Hernia is of long standing and of the indirect variety, it becomes pendulous and descends so as to force the epigastric artery inwards and entirely out of its natural position. In such cases the inferior

assumes almost the character of a direct one and it is only by inquiring into the history of the case that we are enabled to arrive at a correct diagnosis. Congenital Hernia are those cases, in which the intestine has passed into the tunica vaginalis (from the general peritoneal cavity), the passage having remained open from birth. When in complete Hernia take place the canal becomes distended more posteriorly than anteriorly because the tendinous aponeurosis of the external oblique muscle lies in front and this membrane being very strong resists the compression of a tumour

anterior. It is necessary to remember that the testicle in its descent to the scrotum sometimes becomes strangulated in the inguinal canal, in which situation it often remains through life. Now it is important to remember this fact in order that such a case should not be mistaken for one of incomplete inguinal Hernia and it need not be if the scrotum be previously examined. The coverings which a Hernia receives in its descent are, the peritoneum, fascia transversalis, cremaster and intercolumnar fascia. As a general rule, the indirect may be taken from the direct

variety of Hernia, by its larger size and the obliquity of its direction. It has been already stated that very old cases of oblique inguinal Herniae often approach in form or resemble the direct, this being caused by the long continued pressure upon the inner border of the internal abdominal ring. Direct Herniae are not so large as the indirect, because there is more resistance to its formation, than in the other variety, owing to the fact that it has to pass directly through the conjoined tendon of the internal oblique and transversalis muscles.

Now from what has

been said before, it is plain that in the operation with the knife we first cut through integument, 2nd superficial fascia, 3rd intercolumnar fascia, 4th cremasteric fascia, 5th infundibuliform fascia and last of the sac itself—which is the peritoneal prolongation.

But in performing this important operation we should be extremely careful and guarded in our incisions lest we do injury to the contained parts and in order to assist us in thus avoiding important parts, it is necessary to use the forceps in each step of the operation after the integument has been cut through

They should be held in the left hand and made to seize layer after layer whilst the knife which is held in the right hand is made to cut each layer in a horizontal direction. The knife is merely allowed to nip the layer after which a grooved director is inserted beneath it and the sharp edge of the knife allowed to run along the groove, so as to divide the fascia to the required extent. When we have cut down upon the sac the finger is introduced up to the point of stricture and then a probe pointed bistoury laid flat upon the finger is passed between the

intestine and stricture. The cut-
ting edge of the knife is now
directed towards the stricture
and with a slight elevation
of it with the end of the
introduced fingers, the parts
are liberated from incarce-
ration, the stricture having
been by this manipulation,
divided. Before making this
incision it is important
to recollect that the intes-
tine should be slightly pulled
down, for fear that
a fold of it might become
entangled between the edge
of the knife and the stric-
ture, which, if it should oc-
cur might be productive
of fatal consequences.

After dividing the stric-

the bowel is replaced and kept in situ by a suit able bandage and compress, under the first heal-, the patient at the same time being kept in the horizontal position. It is extremely important to remember that the number of layers of tissue constituting the covering, in different cases of Hernia, is by no means the same in all cases. For in all cases we sometimes meet with a surprising number of them. As a general rule, the older the Hernia the more layers of tissue it has for its covering. In those cases in which the Hernia is very large and is of long stan-

ding, we content ourselves with dividing the stricture as in these cases the capacity of the abdomen is greatly diminished, so much so as to prevent the admission of the Hernia into its cavity.

In operating in cases of strangulated Hernia Surgeons have agreed to cut in a particular direction, and this is directly upwards. We however as a general rule think this precaution unnecessary, since in every case of recent date, the gash required to relieve the stricture is so trivial that the epigastric artery will not be touched no matter in what direction the gash

be made. But in those cases in which the hernia is large and of ancient date this precaution is rendered necessary.

In conclusion we must state that our description of the subject under consideration has been meagre and incomplete yet we have endeavoured to describe and classify those facts which seem to us of most importance.

An inaugural dissertation on the Modus Operandi of Medicines Submitted to the Provost Regents and Faculty of Physic of the University of Maryland, for a degree of Doctor of Medicine

By

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Chesterfield County Virginia to wit

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Knowledge is the reward of long years of toil
It cannot be acquired except by constant application
and close study. It is not enough to skim lightly
over the pages of classic lore, or to hasten rapidly along the road to science, culling but the
flowers that spring up by the way.
This is not study, The child of fancy may surrender to his imagination and roam unrestrained
into the bright field of the beautiful, chasing
butterflies that sport in the sunbeam. This is but
mental recreation, Call not those who give
way to its relaxation Students. Hesitating, they
have only peeped through the sash to have

a glimpse of the things within the stone house of knowledge, They have only tasted of the waters of the well of knowledge, have not drunk sufficiently deep to make them thirst again They have not learned enough to know their lack of more. The student must not permit the fire God of day to burn to waste, yet must trim the midnight lamp; He must raise the latch, open the door, boldly enter and learn the things that elevate man, almost up to God. He must drink deeply of the waters of the fountain of wisdom, Drink and be satiated, thirst and drink again, if he would merit the appellation Scholar. Which is more to be prized than that of king, prince, nobleman, statesman, or warrior. The study and practice of medicine though a great and godlike calling, is monotonous, laborious,

and not so inviting, as many of the other arts and sciences. It makes incessant demands upon the time and talents of its votaries. Every man should carry with him to the study of Medicine, good sense, constant application, unflagging energy, and a firm resolve to master, so far as in his power lies, its deep and hidden truths. And to the practice of the art, should take with him, a mind well stored with useful knowledge, candour, honesty, and every Christian virtue. Entering upon the active duties of his profession with a moral dread of its awful responsibilities.

Subject of Thesis.

The Modus Operandi of Medicines.

Experience is knowledge. How emphatically may this be spoken of the medical man, for without

experience, obtained from books carefully read and from the results of his own practice he can affect no good. The medical student must rely for information, wholly, on the books, which he may have read - he has had no personal experience. Therfore in writing a thesis, I do hope it is not expected that I shall tread a new track. I must be frank enough to confess, that but few of the ideas which I now write in these pages are original and at times by close inspection a striking resemblance between my language and the language of some of the authors may be found to exist I shall content my self to follow successfully in the wake of the great men who have writ ten long before my day. Yet I shall write nothing which does not belong, in common to the medical profession and consequently

will not credit particular authors, from whom quotations may be made.

Medicines are substances, which so modify the actual condition of a diseased organ as to remove all disease. It is not enough to say that any substance which is administered for allaying or curing morbid action is a medicine. The definition is too general. Such substances are remedies thus heat, cold electricity, methodical compression, &c, are not properly speaking medicines. Yet if we wish to be very precise in our definition, it will be necessary to point out the difference between, aliments medicines and poisons and to exclude from the list of medicines, such anthelmintics, as act mechanically. It is sufficient for all practical purposes to know that certain substances are serviceable in the treatment of disease

To know their properties, doses, and manner of administration, as also their mode of action, both therapeutical and physiological action. The branch of medical science which treats of medicinal substances is called Materia medica. Therapeutics treats of the application of medicines to the treatment of disease Pharmacy gives a knowledge of the manner of compounding and preparing medicines. In the distribution of the various branches among the chairs of a college, Materia medica and Therapeutics is given to one professor and Chemistry and Pharmacy to another, Still the four are nearly allied. In truth I may be suffered to say here, without being censured for the digression, that the science of medecine is a beautiful whole formed of many branches and to lop off one branch, is to spoil the symmetry of the trunk. A man

may be a distinguished professor in one branch without a thorough knowledge of all, but if he desires to be a successful practitioner, then must he be well acquainted with all the departments of the Science. The nearer he comes to perfection in each branch, the more surely will he as physician win for himself an imperishable fame A fame which shall live, until the sun burns out in the temple of blue ether.

The Modus Operandi of medicines is for the most part uncertain. To learn the organs upon which they first act, in what manner their impressions are conveyed and the phenomena which successively follow their operation, is all we can attain even by the most careful observation. For, says one, we can no more tell why an emetic should produce nausea, and a certain amount of nausea call into action

the organs concerned in vomiting, than we can why a certain amount of venereal excitement produces the contraction of the muscles concerned in ejectione seminis. It may be well thus, for perhaps to know the secret, which has been so long locked up in the bosom of an alwise Creator, can bring with it no practical benefit. It may serve the physiologists of the day as a fruitful field for speculation and controversy. Yet after diligent search and experiments made with all possible care, they can only beget hypotheses founded on doubtful premises and their theories are but idle speculations

Remedies act only in two ways. viz by direct or local and by indirect or general action

In regard to the direct or local action of medicines, a few examples will serve our purpose

Thus the employment of nitrate of silver to destroy fungous growth, the use of styptics in external hemmorrhages, collutories for sore mouth, and soothing applications in inflammations, are examples of direct action. A vast majority of the medicines given internally are indirect or general in their action. The manner in which they affect the system is either through the nerves, by an obscure agency, known as sympathetic influence, or through the medium of the blood by absorption. That there exist a sympathetic connexion between all parts of the body, is a fact conceded by every one. By the relation of parts, one to another, they may be more or less closely connected in sympathy, one for another. Thus we have the sympathy of continuity and the sympathy of contiguity.

Again the condition of a part at one time, may give it a stronger predisposition, than other parts or than that same part at other times, to respond to an impression that has been made elsewhere. That medicines act upon the nerves of a part and are conveyed by them to the part more nearly related by sympathy is a fact equally indisputable. The results of a few experiments will serve to prove this. Dupuy divided the eighth pair of cranial nerves in a horse, then gave him two ounces of nux vomica without any symptoms resulting, indicating the action of the poison To anther horse equally able to bear the operation of the drug and with the pneumogastric nerve undivided, he gave two ounces of the same poison, and Tetanic convulsions and speedy death was the consequence. In this case perhaps the division

of the nerves destroyes the function of absorption. But the instantaneous death which follows when a single drop of prussic acid is put upon the tongue of an animal must remove all doubt, if any exist, that some medicines act primarily upon the nerves. The mode in which the medicinal agents influence the nerves, is yet a subject open to the investigation of the enterprising men, who belong to the profession. It is more than probable, that they will seek for the cause in vain. This I know that it is not necessary for the part to be physically modified, nor is any organic change perceptible. An examination after death, caused by poisoning with hydrocyanic acid fully proves. The manner in which the impression is conveyed differs under different circumstances. It may be carried

I have followed Professor Dunglison in regard to Sympathy of contiguity and continuity Yet as the nerves do not anastomose, there can be no sympathy except through the nervous centres. The impression is conveyed to the cerebro spinal system and reflected from thence to the diseased organ. The action is altogether reflex

to the brain by the afferent nerves and reflected from thence to the sympathizing organ or adjacent parts may receive the influence one from another, of which the sympathies of continuity and continuity, already mentioned, are examples. (See note on opposite page)

We now come to speak of the absorption of medicines, and their action through the medium of the blood. As regards the absorption of medicines into the circulation there is abundant proof of the proposition. I know only one Therapeutist of any celebrity, who denies the truth of this statement. Dr Chapman, now emeritus professor in the University of Pennsylvania, denounces it as a relic of the humoral pathology. Various substances have been detected, at certain intervals after they have been swallowed, in the secretions, in the solid

tissues of the body, and even in the blood itself. Thus, rhubarb and turpentine have been found in the urine, garlic in the exhalations from the lungs, sulphur and mercury in the perspiration, garlic, various purgatives, narcotics and other medicines, in the milk. There is not an old negro granny South of the Potomac, who does not know, from her own experience, that certain articles of food eaten by the suckling mother, will affect the child at the breast. And every farmer, in the broad domain of this good old Commonwealth, is familiar with the disagreeable taste of the milk brought to his table in the spring of the year. The disagreeableness is produced by his cows grazing on the wild onions, and green buds, which have just put forth on the trees. Are, men, who make pretensions to science, more ignorant, than the unprofessional

and illiterate African midwife, or the hardy yeomanry of the land. One tells us, that substances injected into the veins, are instantly fatal, and consequently compound substances absorbed into the blood, must be poisonous. The records show to the contrary. Liquids, of lower temperature than the blood and too rigid to circulate through the pulmonary capillaries, thus arresting the circulation and preventing the aeration of the blood, and forcibly injected into the veins, are apt to produce consequences greatly to be deplored. Of late years the injection or infusion, as it is called, into the veins, of medicinal agents, of proper consistency, in reasonable quantity, and with not too great velocity, has become a very common practice. Perhaps it is not altogether right to say, (very common,) but such things have been recommended and practiced, at various times

in cholera and some other affections. The drug in this manner of administration producing the same results, as when given by the stomach. The article infused, acting more speedily and requiring a smaller dose than when exhibited in the usual way. With a large majority of the medical profession, I beleive the absorption of medicines into the blood, to be a fact, established by innumerable evidences Considering it in this light, I shall next proceed to speak of the means, by which medicines gain admission to the blood. There can be but two aveneus. Are they absorbed by the lacteals, by the veins or by both. From various experiments made upon the lacteals, it is highly probable, that their chief if not exclusive function, is to take up alimentary substances, such as can be converted in to chyle. Medicinal Sub-

stances are seldom found in them. On the other hand, experiments are equally strong in proving, that the veins are chiefly concerned in the absorption of medicinal agents. Magendie found when the lacteals were tied, nux vomica affected the animal in six minutes and when the veins of another animal were tied, no effect was produced by the poison administered. The mode by which this venous absorption of drugs, is effected, is probably To a great extent physical or by endosmose The rapidity of the absorption is influenced by a variety of circumstances, as the part or tissue to which the medicine is applied, the nature of the medicine the condition of the system &c. Medicines are absorbed from the skin, and its prolongation the mucous membrane, more

readily from the alimentary mucous membrane than from the skin. The cuticle offering an obstruction to the process of absorption, but most readily of all, from the pulmonary mucous membrane.

Then from the foregoing it will be seen that medicines act through the nerves, by sympathy, and by absorption into the circulation. One author Dr Dunglison refers also to another mode, revulsion. Perhaps not with sufficient reason. Revellents applied to a part first make an impression upon the nerves of that part, producing irritation with an increased flow of blood to the part. The action of the revellent must be primarily on the nerves. So that at last revulsion is produced through the nerves and no more deserves a seperate consideration than

does the alterative action of medicines. In truth not so much deserving of notice, as the modus operandi of revellents is understood while alterative action is very obscure. The term alterative action is very objectionable, we can not, properly speaking, call it an action. The word alterative, being used as a matter of convenience, for want of a better and as a cloak to our ignorance. The fact of the whole matter is just this, medical men do not know and perhaps never will, why certain remedies called alterative cure disease often when all other means have failed. Ask them how, mercury acts when pushed to salivation, They tell you alteratively This is an elementary fact, no one can tell why mercury acts alteratively. But all speak of its alterative power as the chemist does of catalytic agency.

[illegible] of [illegible] [illegible] [illegible] [illegible] [illegible] the [illegible] [illegible] [illegible] these symptoms are generally preceded by a rigor or a chilly sensation which is followed by high fever, pain in the head, [illegible] great thirst, quick pulse, [illegible] not invariably so; respiration hurried, nau-sea; [illegible] the lochia is either wholly or partially suppressed, and I would state here that it is a good rule when the lochia is wholly or partially suppressed [illegible] pulse over one hundred to watch careful-ly [illegible] any unhealthy action that might arise in particular, if any epidemic fever be prevalent at the time. The [illegible] was usual

Alteration of the ... with ... and it sometimes alternates to ... when taken ... [illegible]

The constipation is obstinate throughout the early part of the disease and requires large and repeated doses of purgatives to relieve it; but as the disease advances the bowels give way, and the discharges are large and quite offensive.

[illegible] ... rapid ... [illegible]

In the adynamic form of the disease there is but little alteration of the main symptoms. The pulse weak, small and very rapid varying from ... [illegible] the prostration is more complete - the ... the tongue ... and dry - sordes on the teeth - sometimes ... [illegible]

[illegible]

delirium - subsultus tendinum - a [illegible]

and the [illegible].

Anatomical Characters. - The ab-

domen will be found swollen and

[illegible]ed, and upon cutting into the cavity

[illegible]toneum will be [illegible]

The peritoneum will be found red and

inflamed - its vessels enlarged - sometimes

however, it is pale, and [illegible]

[illegible] natural colour. - [illegible]

[illegible] an effusion of serum more or less

[illegible]

[illegible] albuminous flakes floating in it.

This fluid will be found in greater

quantity in the pelvis and iliac fossae.

It is sometimes of such a glutinous

[illegible]

[illegible]

[illegible] congested. - The womb will

[illegible] found [illegible]

[illegible]

[illegible]

found in its parenchyma. The ute-
-rine appendages also will be found
[illegible] diseased.

[illegible] importance to be able to diagnosticate
between after-pains and the disease
[illegible] after-pains [illegible]
[illegible] particular
[illegible] the sufferings of the pa-
-tient are greatly [illegible] by it.
[illegible]
[illegible]
you [illegible]
[illegible]
[illegible] great many puerperal
patients die for the want of timely

[illegible] cavity. The inflammatio[illegible] [illegible] [illegible] action is [illegible]

[illegible] skin - quick, [illegible] pulse - [illegible] [illegible]

[illegible]

[illegible] [illegible] [illegible]

[illegible] - low muttering delirium -

[illegible] &c.

Causes. It is sometimes con[illegible] traced to exposure to cold - atmos[illegible] [illegible] [illegible] tudes - [illegible] residing in [illegible] [illegible] [illegible] to [illegible] indulgence in eating, indigestible [illegible] or any thing which has a tenden[illegible] [illegible] lower the vital energies. The [illegible] [illegible] cause [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

[illegible]

[illegible] [illegible]

[illegible]

[illegible] [illegible]

[illegible] that it might be [illegible]

[illegible]

that the [illegible] patient [illegible]

[illegible]

[illegible] only then [illegible]

would be the [illegible], we should [illegible]

[illegible]

[illegible]

the [illegible] regardless of the quantity

[illegible] we had made an impression on

[illegible] pain, which we [illegible] in by the

pain the breathing, the expression, the

[illegible] &c. The abdomen should

[illegible]

-ous leeches, which are to be followed

by a large emollient poultice, or hot fo-

mentations [illegible]

out of hot water and renewed often.

After the bleeding we should give 15 grs

calomel, and if it should not operate

[illegible]

[illegible] of [illegible] oil, [illegible]

[illegible] thartic, but if the stomach should

[illegible]

[illegible]

After the operation of the medicine,

if the disease should not be subdued,

it may be necessary to bleed a second,

third or [illegible] a [illegible]

[illegible] with opium should then

be given for the purpose of establishing

its [illegible] [illegible]

[illegible] by some, but by others objected

[illegible]

[illegible] action, they prevent the employ-

[illegible]

[illegible] the disease is on the increase

[illegible] decline. Some think highly of oil ter-

[illegible] tine, but others have not found

[illegible] benefit from its use. When the

An

Inaugural Dissertation

On

Wounds of the Throat

Respectfully submitted for the examinatio

Of the

Provost Regents Faculty of Physi

Of the

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By

John Perkins Fleming

of

Pennsylvania

Belonging to the regulations of this time honored institution, it is made incumbent upon every student who applies for a Diploma, to present for examination by its Honorable Faculty, a Thesis, upon some medical subject, or a report of some medical cases, that may have come under his observation. Agreeable to these requirements I have chosen as my subject,

Wounds of the Throat.

upon which I shall make a few general remarks, and then proceed to report a very interesting surgical case, that came under my observation, a few months since, as illustrating my subject, and the wonderful resources of nature.

Wounds of the throat, are always grave, and attended with considerable danger; on account of the many important parts

which are interested. The [illegible] in the [illegible] the Larynx, Trachea, Pharynx, Esophagus, Common Carotid artery, and all the principal branches of the External Carotid, the large Jugular vein, and the Pneumogastric nerve, all exposed to injury. Such wounds are generally inflicted with the intention of suicide, but, from the position in which the unfortunate wretches commonly place themselves, in committing the diabolical act, and from the limited amount of courage, of which such persons are generally possessed; they often fail at heart before accomplishing their object, and escape with a simple wound of the external parts; which is not a very serious matter. In the case which came under my notice, we shall see that the lesion was a very serious one, involving most of the important vital parts

I have previously enumerated, as being situated in the region. I will proceed to describe the case.

George Frost, aged about thirty eight years, a resident of Baltimore, Maryland, of intemperate habits, attempted to commit suicide May 3rd 1850 by cutting his throat with a razor. He had been laboring under an attack of Mania a Potu for some days previous to committing the deed, and was suffering at the time from considerable mental aberration. About 7 O'clock, P.M. of the above mentioned day, my uncle and Preceptor, Dr. Joseph H. Perkins, was hastily summoned by a messenger, stating, that Frost had cut his throat! The Doctor started immediately, for his residence, and found him kneeling with his arms and head on a chair near his bed room door, having a few moments previously gotten up from where he

was originally lying, he ordered the door to
admit his sister, who had requested him
to let her in: its soon as he opened the
door, he sank down into the position in
which the Doctor found him. The wound
had then ceased bleeding, although his
clothes and the floor indicated that
he had bled very profusely. With the
assistance of the Doctor, he got up and
walked to his bed, a light being pro
cured, we proceeded to examine the wound
and found the anatomical lesion to be
as follows. The incision commenced in
the superior surface of the Thyroid cartilage,
and was carried backwards and upwards
towards the angle of the inferior maxill
ary bone, dividing in its course the in
teguments, superficial fascia, Sterno-
Hyoid, Thyro-Hyoid and Omo-Hyoid
muscles. The blood vessels divided, were the

anterior and external jugular veins, the superior thyroid artery, and all the principal branches of the external carotid. The Larynx was entirely divided, also the Pharynx, with the exception of about a fingers breadth of the posterior part. Upon the first examination, the right common carotid was supposed to have been cut, no pulsation being perceptible in it, but a subsequent investigation proved it to be uninjured.

Finding it to be so grave a lesion, the Doctor requested the aid and advice of our distinguished Professor of Surgery, Doctor N. R. Smith, who was promptly on the spot, and after examining the case and finding it to be such a terrible wound, hesitated not to pronounce it hopeless, and beyond all the resources of art. His extremities were then cold

Pulse, imperceptible at the wrist, he was in fact as Professor Smith expressed in his usual emphatic manner, [illegible]. So [illegible] did it appear to make any effort to save the patient, that the wound was simply bandaged, and the Doctors took their leave expecting him soon to breathe his last.

May 4th Patient still living, passed a rather uncomfortable night, no reaction had come on, but no hemorrhage, pulse weak, but regular, mind more calm. Professor Smith was again called in consultation, he was surprised to find the patient still in the land of the living advised the wound to be cleansed, and a woolen comfort to be tied around the neck, in such a manner, that the air might pass readily through it; being of open texture, as the patient,

had, necessarily, to breathe through the wound. Chicken soup injections were also ordered to be given through the day.

May 5th, Rested well the previous night, countenance much brighter, pulse improving, appetite very keen, decidedly opposed to taking any more soup via Rectum, thought it a very unnatural way of taking nourishment. A gum elastic tube was introduced through the wound into the Esophagus, through which, was injected a pint and half of soup; felt much better after so good a breakfast. During the day he wrote upon a slate a statement of his case, the time and the manner, in which he committed the act, and the causes which led him to do it. According to his statement, he committed the act between three and four O'clock in the afternoon,

[illegible] cision, soon afterwards he became exhausted, and fainted, falling on the floor, at which, he has no recollection [illegible] door, some three or four hours afterwards. [illegible] morning, about the same quantity of soup was again given him through the tube.

May 6th, Passed a comfortable night, gaining in strength, digestion good, bowels regular, changed his diet to Beef Soup, increasing his allowance to one quart, twice daily.

May 7th, Condition much improved, mind perfectly rational, his general health good, same diet continued, with the addition of one wineglassful prime Sherry wine once daily.

May 8th, Getting along very [illegible]

very fast, and evenly, [illegible]
Same treatment continued up to May
20th, when the wound was found to have
very much contracted, and the patients
[illegible]
[illegible]
[illegible]
the cut surfaces. The following simple
[illegible]
will now [illegible]
A muslin night cap, was fitted to the head,
having attached to it two strips of mus
lin, on each side immediately in front
of the ears. The patients head was then
bent forward, and downwards, until the
cut surfaces were nearly [illegible]
other, when the head was secured in that
position, by attaching the strips of mus
lin to a band firmly fixed around the

duced a Hiccough, for a few days, and made him rest rather uncomfortable at night. [illegible] any inconvenience that might [illegible] through the mouth, and the soup injected as before. His digestion continued to improve, his general health was better than it had been for years, could articulate with sufficient distinctness to be understood without the necessity of using a slate. The Doctors then ceased visiting him, regularly, and handed him into my charge. I visited him three times daily, for the purpose of [illegible] ing the tube, and giving him his soup, for about two weeks, when he attempted

succeeded so well, that it made it unnecessary for me to visit him any longer, for that purpose. [illegible] and have noticed, with much interest, the wonderful process nature was making in the restoration of the various tissues and organs destroyed.

The first effort of nature in restoration, appeared to begin with the internal structures, the Pharynx and Larynx. The external wound was at the same time rapidly uniting by granulations, but when the sides of the wound had healed up, an opening of about an inch in length, was left remaining unhealed in front, waiting as it appeared to be for Nature to finish her work with the

organs inside. by looking carefully through the aperture, they could be seen gradually uniting, and granulations were springing from its surface, to attach themselves to the detached portion above, and by this union the epiglottis was being drawn down to its original position; and had, already, begun to exercise its peculiar function, sufficiently, to enable the patient, to swallow a small portion of fluid without much inconvenience.

The articulation is now nearly perfect, There is every reason to infer from what nature has already accomplished in this case, that she will not cease her benign efforts, if undisturbed by art, until she has perfected her work.

The case throughout, has been a beautiful illustration, of the wonderful recuper

[illegible] of [illegible], [illegible] in-
press upon the mind of [illegible]
practitioner the importance of studying
her laws, and of applying them in the
treatment of the "Hang ith that flesh
is heir to".

The exhaustion, and prolonged syncope,
which followed the sudden loss of
so much blood, in this case, was
no doubt the means of saving the
patient's life, by allowing the blood in
the divided vessels to coagulate, suf-
ficiently to resist the reaction that
followed. Had the patient been with
in the reach of Medical aid, or of
any human assistance, soon after the
accident, the first thing done would
have been to resuscitate him, which
would have brought on a premature re-
action, with profuse hemorrhage, and

death would inevitably have followed.
I have, no doubt, that many of the
[illegible]
[illegible] are rendered fatal by the
officiousness of human aid, in frus-
trating natures own efforts.
We feel disposed to condemn and rid-
icule the principles and practice of
Homoepathists, but at the same time
we should thank them, with all our
heart for their facts, as they teach us
the importance of doing nothing to
thwart Nature in her efforts to cure
disease, and above all, show us the wis-
dom of avoiding violent reactions.
There is another important feature con-
nected with this case, worthy of atten-
tion, namely, that the Mania a Potu
was perfectly releived by the excessive
hemorrhage. Does not this conflict

[illegible]
regards the Pathology and treatment
of the disease. Most of the medical
writers [illegible] on the
subject, view the disease as an atonic
or depressed state of the vital powers,
and recommend stimulating treatment.
Then might not the result of this
case; [illegible] the use of the lancet,
more frequently, in this affection, and
may not its failure to produce ben-
eficial effects, be attributed to the
limited extent to which blood-letting
has been carried, in those cases in
which it has been tried.